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Mac

ADDICT

36



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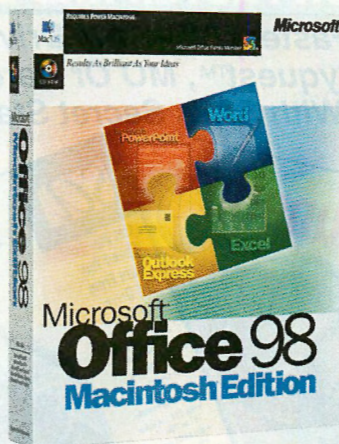
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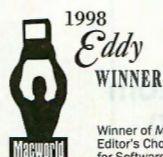
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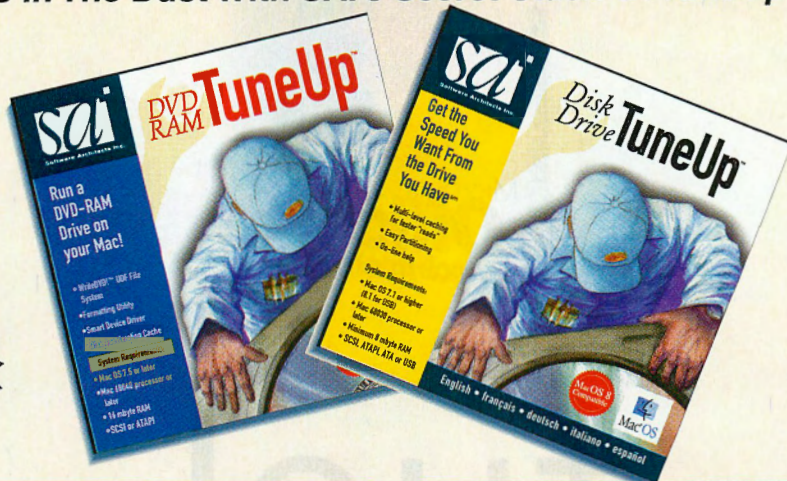
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DVD-RAM TuneUp requires Mac OS 7 or higher; Disk Drive TuneUp Mac 7.1 or higher & 8.1 for USB.

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AUGUST 1999

highlights

Mac ADDICT 36

COME RIGHT IN and enjoy the show. after all, we all belong here!



IT WAS YOU who stole my potato salad out of the fridge!



WHO'S GOING TO BE up against the wall when the revolution comes?



YOU'RE RIGHT. We really don't do any work around here.



COVER ILLUSTRATION
by time management
consultant Ken Bousquet.

26 Make Your Mac a Speed Freak

Even if you've got the bus to brag about your big megahertz, hidden bottlenecks may be keeping your Mac from reaching its top speeds. We'll show you how to make that Mac go faster by dismantling these speed traps—the main attraction of our five-ring freak show targeting your CPU, system software, drives, graphics, and modem. However, don't blame us when people start to point and stare. **BY OWEN W. LINZMAYER**

36 QuickTime Gets in Gear

The secret behind the vast success of the *Star Wars*—*Episode One: The Phantom Menace* trailer, QuickTime 4 hits it big with streaming video support, a slew of new features, and the final word on video editing software. Get a load of what you can do with the coolest tools to hit the galaxy since the light saber. **BY STEVEN ANZOVIN AND RAF ANZOVIN**

44 Born to Code

How do all of those young Silicon Valley 20-somethings afford their mansions, sports cars, and out-of-control Mountain Dew habits? They were programmed to make money—um, we mean they program to make money. Learn how to sling code using AppleScript and FaceSpan, RealBasic, and MacPerl. We can't guarantee that you'll get rich overnight, but if you do can we borrow a twenty until Friday? **BY CHILTON WEBB**

how to

76 Make StarCraft Worlds

Blizzard Entertainment's *StarCraft* is one boss empire-building, alien-bashing, resource-managing strategy game. And thanks to its included level editor, StarEdit, the mayhem can last forever. Here we show you how to build a map and campaign for your own Terran, Zerg, and Protoss bloodbath. **BY SCOTT LOVE**

80 Skip Between Scenes in QuickTime 4

Thanks to one of QuickTime 4's most underhyped new features, you can break your home movies into tracks just like those on a laser disc or audio CD. Load up your latest cinematic vision (or even someone else's) and follow our instructions to get your audience jumping from scene to scene in no time. You can skip all of those long, boring character-building sequences for the real action parts. **BY MARK SIMMONS**

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Volume 4, Issue 7

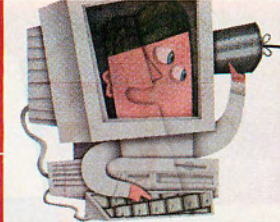
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12 Editor's Note

Apple's control issues, *MacAddict* staff changes, and other scary stories.

14 Letters

We don't deserve you. We really, really don't. Really. We mean it.

18 Get Info

Mirror, mirror, on the wall, what's the shiniest USB gadget of them all? Where's my DVD? Whatever happened to Virtual Game Station? Is there intelligent life on other planets? Is there intelligent life on *this* one? This month's roundup will answer all of your burning questions.

24 Scrapbook

It's 40 square millimeters of computing brainpower! Find out everything there is to know about IBM's copper-fueled PowerPC G3 processor, and peek into the future of the PowerPC family while you're at it.

52 Reviews

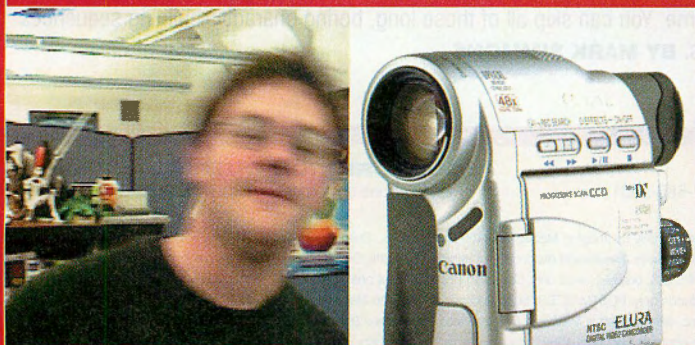
You'll be seeing Fireworks 2.0 when you finally get your eyes on the long-awaited Palm V, complete with MacPac 2.1; the now legendary Orb drive; and three hot USB gaming devices. If those don't flip your skirt, you'll also take a peek at Imperialism II, Bryce 4, Pixels:3D 3.0, and many, many more. No clowning around.

84 Ask Us

We clean house and update you on new answers to past questions concerning font menus, favorite folders, surfing snafus, and desktop pictures, to name a few. So don't worry—we're here and everything will be all better soon.

112 Shut Down

Giggle, giggle, sniff, hee hee hee—go ahead, laugh it up!



WE TOOK MARK SIMMONS' BRAIN and replaced it with a digital video camera. Can you tell the difference?

Mac
ADDICT 36
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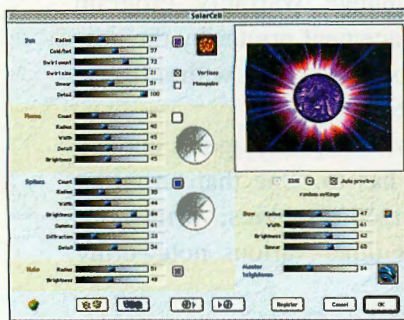
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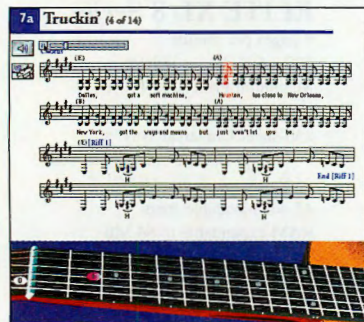
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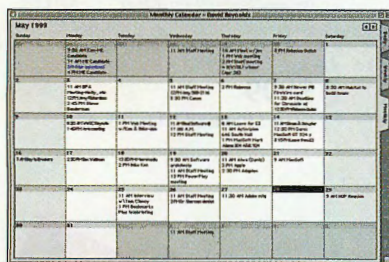
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highlights

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Palm MacPac 2

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Railroad Tycoon II Demo

I've been working on the railroad (sing it with me)... all live long day... can't you hear my whistle blowing... Alright, already! At least the song will get you in the mood for this railroad building sim/strategy game. Create and manage your own railroad company that spans through time (from 1804 to beyond the year 2000) and space (from New York to Cairo).



MY TRAIN OF THOUGHT has just gone out to sea!



He's back and better than ever! Raf Anzovin breathes new life into his 3D-animated character, Dennis the dog. Here's a sneak peek at what's to come in this trailer for "The Animator's Apprentice" in this month's staff video.

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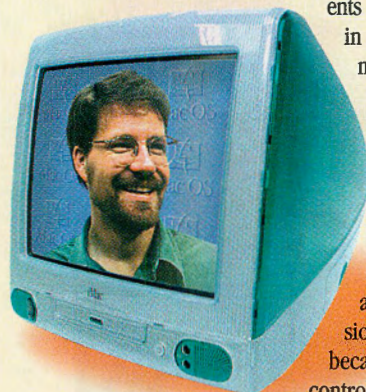




editor's note

Taking control of taking control is a good thing...really.

A school of psychology holds that in every person's life there are three interrelated areas of primary importance: affection, inclusion, and control. Take away from one of these, and a person will double emphasis on the other areas. For example, say Eric's parents never included him in discussions about moving as a kid. As an adult Eric tries to control everything around him while using affection to get what he wants. Apple must have had real issues with affection and inclusion in its early life, because it's tripling up on control these days.



Back in the troubled times of 1997, Apple had a difficult time controlling anything—product lines, media reports, information leaks, finances, you name it. With the departure of Amelio and the arrival of Jobs, that changed, which was necessary for the company's survival. Jobs simplified product lines, exercised masterful spin control to nudge media reports, stopped information leaks, and generally crafted a well-run organization out of near-chaos. Now we have a vibrant, resurgent Apple, with a hot product line, lots of industry buzz, a focused mission—and some control problems. This time, though, it's a matter of exercising *too much* control at the expense of its customers—and that's going to spell trouble down the road. Not convinced? Here's an example.

Apple has decided to make Mac OS updates available only from Apple, according to Apple officials. If you want a copy of the Mac OS 8.6 updater, you have two choices: Either download the 30MB-plus file from Apple's site (free of charge other than the long download time), or buy an update

CD from Apple. Fair enough. After all, it *is* Apple's software, and the company can do exactly as it pleases with it. Apple is also being equitable about the decision—it isn't allowing *any* magazine to distribute the update. But is it in the best interest of Apple's customers? Probably not, when you consider that allowing distribution of the free update on the CD-ROMs in all Mac magazines would have amounted to hundreds of thousands of updates getting out there—at no cost to Apple. We can't be too righteous about this, however; *MacAddict* has a vested interest in distributing the Mac OS 8.6 updater on our CD-ROM (as does every other Mac magazine with a CD) because it boosts magazine sales.

Still, this distribution model ultimately hurts consumers who would otherwise get the update from one of several sources at varying degrees of cost and convenience. Now, they have two choices, both of which Apple controls and neither of which rates very high on the convenience scale. Some Apple-watchers have put forth the argument that Apple made this decision as a way to generate new revenue, but that seems pretty unlikely. After all, the updater is available for free download, which cuts into any revenue stream, and by the time you factor in the cost of taking orders for an updater CD, pressing the CD, mailing it out, and dealing with other customer service issues, the amount of revenue generated is pretty darn small. No, this isn't about revenue; the maneuver has all the earmarks of a control struggle.

But enough crying about not having the Mac OS 8.6 updater on the CD. Other areas in which Apple is exercising its new knack for control include the company's habit of dealing in secrets, the revelation of which gets people fired. Then there are Apple's requests for the disassembly of certain Apple-related Web sites. These aren't anti-Mac sites; instead, they're mostly parody sites aimed at the iMac—funny and generally good-natured, and, one would think, also covered by the First Amendment. Apparently, Apple's legal department has lost its sense of humor.

It's hard to argue with success. Apple has been profitable for several quarters now, its stock is at a multiyear high, and the adjective "beleaguered" no longer precedes its name in the media—accomplishments that would not have been possible without firm control. But really—there are some commonsense limits. After the novelty of Apple as an innovator wears off, the company is going to face folks eager to bring it down again, and it might relearn a lesson in humility as it did back in 1996. It will need the good will of its customers and supporters then.

Remember the inclusion-affection-control equation? Triple up on control, and both inclusion and affection take a hit.—DR

A GRIZZLIER STUB

We have a real affinity for change here at *MacAddict*, and we have a few changes to report this month. The first is that Rob Capps is taking over as editor of the magazine—and he's going to be great. Rob has a natural grasp of magazines, he knows and loves the Mac, he understands what makes great reading, and it was his destiny. After all, he kicked some serious butt at *Marathon*, which marks him as a chosen one. Be kind.

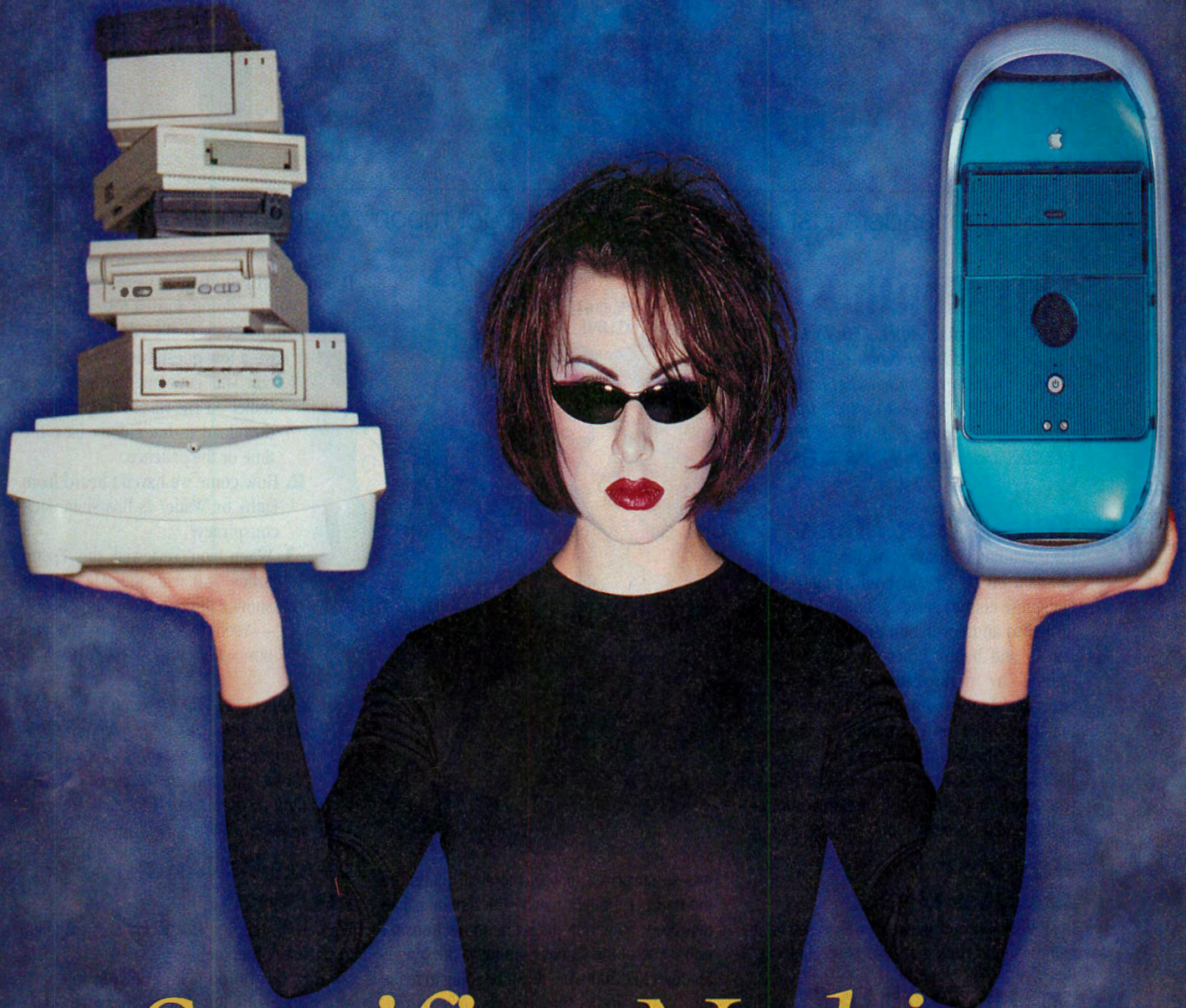
So what happens to the grizzled stub who replaced Cheryl, you ask? After a year and a half in the role, I realized that what I *really* like to do is play around with Mac technology and write about it. So I asked to move into a writing role at *MacAddict*, one that lets me dive into the latest Mac goodies and write about them.

We have a couple more changes to tell you about. The first change is a goodbye. After three years at *MacAddict*, first as Web master and then as our senior technology editor, Mark Simmons has decided to leave *MacAddict* to get back into online work. We will miss Mark's amazingly quick wit, mammoth vocabulary, technical insight, and collection of Gundam robots. I'd like to thank Mark for everything he's contributed over the years—we're better for having worked with him.

The second change is a hello. We recently hired Jenifer Morgan as our new managing editor. Jenifer did a stint at *Miller Freeman*—but more important, she is on the cusp of getting her instrument rating as a pilot as I write this. And she fences!—DR

Apple must have had real issues with affection and inclusion in its early life, because it's tripling up on control these days.

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letters

Jeerleaders just say no to football but get moony over our mascot.

This Month

WRITE TO US: MacAddict, 150 North Hill Dr., Suite 40, Brisbane, CA 94005, or email to letters@macaddict.com.
FOR CD PROBLEMS: Go to <http://support.imaginemediacom.com>. **FOR SUBSCRIPTION QUERIES:** Call (toll-free) 888-771-6222.

YUP, THAT'S OUR MARK

I was reading an issue of Mobile Suit Gundam 0079, a really cool manga (Japanese comic) series the other day. I turned to an information thing in the back, and lo and behold, there was a column written by none other than Mark Simmons! Is this your Mark? I think it may have been, as I remember seeing a bunch of Gundam bookmarks one time in a Web browser column in *MacAddict*. If this is your Mark that wrote the Gundam column—well, Gundam is really cool!—MYKE WOHL

BUT NOT A GOOD ONE...

I can't tell you how excited I was to see all the games soon coming to the Mac platform. I



was so surprised to see a football player on the cover, I thought maybe the mailman had delivered the wrong magazine to my house. I know one of the games coming to the Mac is Madden NFL 2000, but if you're going to make the cover look like *Sports Illustrated*, couldn't you at least make it the swimsuit issue with a picture of some of your staff cuties in bathing suits? (Preferably not Prison Guy.) Or in keeping with the gaming theme, get another hot picture of Lara in similar attire? In fact, maybe in *Sports Illustrated* fashion, you could devote one issue a year to some hot-looking Macs pictured with some hot-looking women (and men, so as not to be sexist). Just a thought.—E. ENGBERG

DESPERATE TIMES...

Do you notice those NT ads in *Time*, *Newsweek*, and the like? They say something like "NT is up to three times as reliable as Windows 95." Great comparison.—TIM WELD

DO WE PASS?

I'd just like to say I love your magazine and what you've done with The Disc. The Myth

II and StarCraft demos were great. Kris Fong is doing a great job. Rob, that movie was really cool, too. I just have a few questions:

1. Can you guys put the *Star Wars* trailer on The Disc? I keep trying to download it, but I don't have the time or the patience.
 2. How come we haven't heard from Kathy or Wade? Is this some sick conspiracy?
 3. When you reviewed the Epson Stylus 740 with the iMac, did it show a desktop icon? Mine didn't.
- VINNY (NO, I WON'T INSERT A RANDOM NUMBER INTO MY NAME) HEALY

Answers: 1. The PR flack for Lucas-Films said no. 2. If you read the magazine backward under a strobe light, all will be revealed. 3. No. Only Apple's LaserWriter drivers create desktop printers.

JEALOUS MUCH, HEATHER?

Well, well, well, the *MacAddict* staff got to go to Cozumel. Bite me!

How do you do it? Not only do you have Mac dream jobs, but your company sends you to exotic locations for fun in the sun. Bite me again! Your taunting little yellow box:

"The weather is perfect and it's raining where you are.

"We're drinking pina colodas with the dolphins and you're stuck in traffic.

"We're relaxing on the beach and you're trapped like a rat in your office. Nah! Nah!"

I can't stand it! Bite Me 3.0! I hope you all got diarrhea!—J. PAPPANO

KILLJOY

Let's see...you spent \$15 for the PC case, \$5 for a new fan, \$59 for SCSI ribbon cable, \$8 for L-plate slot adapters, plus maybe a buck for SCSI ID jumpers, for a grand total of \$88. For \$85.33, I bought a four-device SCSI case complete with a 200-watt power supply, dual fans, external SCSI ID switches, all internal wiring, and LEDs for power and device status



GET ON, GET ACTIVE. Talk to us and to other Mac addicts at the Web site.

Recently Sighted

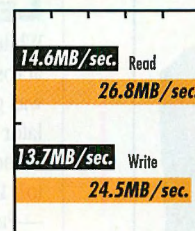
The newest color scheme for the iMac? I don't think so. My lovely and talented wife quilted an attractive cover for one of the Classic IIs I bought last year. I paid \$30 for the lot of 11. They were inexpensive, but they are still Macintoshes and deserve all of the protection we can provide.—RICK NICHOLLS



Think Performance.

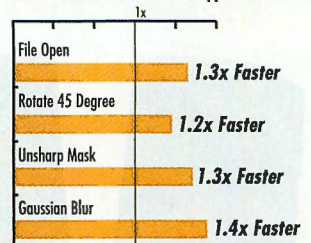
Improve the performance of even the fastest G3 with Hard Disk ToolKit 3.0. Turn multiple drives into blazing fast disk arrays with RAID support. Create scratch partitions that supercharge applications such as Adobe® Photoshop® and Premiere®.

Disk Array Performance†



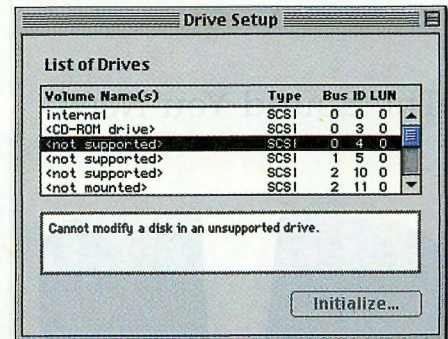
Photoshop Performance*

Times Faster Than Standard Apple Partition



Think Versatility.

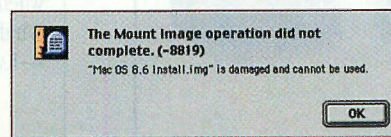
The simple drive utility that came with your Mac is designed to support only the hard drive that came installed with your Mac. Hard Disk ToolKit is hand-tuned to maximize the performance of over 1,000 storage devices, including the one in your Mac. We also offer data encryption, password protection, device cloning, and the ability to optimize specific drive parameters.



Apple Drive Setup

Think Reliability.

Using the Apple driver on third party drives may lead to data loss. Hard Disk ToolKit offers superior reliability. It even tests all your drives at start-up and warns you of imminent disk failure.



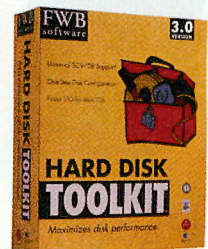
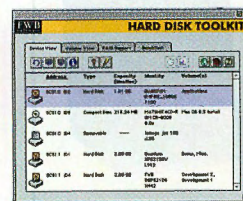
A problem you may experience when using the Apple driver on third-party drives.



Hard Disk ToolKit Diagnostics

Think FWB.

We are the leader in storage management. We've been bringing you award-winning MacOS utilities for more than 15 years. In fact, Hard Disk ToolKit 3.0 is—as MacAddict puts it—Freakin' Awesome. So what are you waiting for? Download your copy today at www.fwb.com.



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MacConnection
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Micro Center
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* Photoshop Test Parameters: 54 MB CMYK Photoshop File, Power Macintosh 300 MHz Blue and White G3, Mac OS 8.5.1, Apple 6 GB hard drive filled to 75% capacity, 64MB RAM, 32MB allocated to Photoshop 5.0.

† Disk Array Test Parameters: Power Macintosh 300 MHz Blue and White G3 with single SCSI drive vs. two-drive disk array. Benchmarked with MacBench® 5.0's Sequential Read/Write Disk Test of 1024K file size.

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from CMPEXpress. Did I miss the point of your article? Seems like all I missed was the joy of ripping apart an old PC.—BILL WRAY

LET'S MAKE A DEAL

While reading the history of Apple, I came across a reference to the startup capital that was generated by Woz selling an HP45 calculator and Jobs his VW bus. Do the Apple founders remember who they sold the items to? Is it possible to locate these items?

—FRANK CZOPEK

No, but after scrambling around the office we were able to round up an old HP printer nobody seems to want and Adam has a VW Golf he might be willing to part with. Why? What's it worth to you?

YOUR WISH IS OUR COMMAND

I love my stylish MacAddict T-shirt! For close to a year now I've proudly displayed Max all over my back. The problem? I've only got one shirt in one color! That's not enough Max for a week. How about putting him out in flavors? If I had a strawberry, grape, lime, tangerine, and blueberry array of shirts, I'd have one for every day of the week except Sunday, when I could wear my "Toast Windoze" shirt!

—KAREN L. THALIN

Although Max doesn't make an appearance on our sexy new summer T-shirts, we do offer them in all five fruit flavors. You can check them out at the MacAddict Web site and order them by dialing 888-468-1300 between 9 and 5 p.m. Pacific time.

SWEET DREAMS

On the day of my sister's confirmation, there was a party afterward at the Tarrytown House in Tarrytown, New York (my hometown). My sister Erica (11), her friend John (11), and I (14) were wandering around the parking lot when we spotted a golf cart, a rope, and a pee-pee sitting next to each other. We tied up the pee-pee (an old 286) and drove the cart over a gravel road and eventually back into the parking lot where we made sharp turns really

fast so the pee-pee would fishtail and smack into a tree. It was hilarious...until we remembered our aunt back at the Tarrytown House with a Sony HandyCam next to her chair...d'oh!—STEVE LAGOTTE

FORGET THE RAINFORESTS —SAVE NIKKI!

I thought the staff videos that featured Nikki were really great. The Blossom impression was hilarious. Oh, and when she stole the Goldfish from *PC Gamer*, that was great. I say, save Nikki. "Automated Death" was cool, but not really all that funny.—CORY NOMURA

In response to Robert Jailall's letter about getting rid of the lovely MacAddict girls—namely, the beautiful and talented Nikki—I think Robert needs a pair of iGlasses. The girls in the staff videos are the reason I subscribed to the magazine in the first place. However, I'd much rather see them in Bondi blue bathing suits instead of jeans and T-shirts all the time.—JOHN KORMAS

OUR SECRET'S OUT

With all the excitement OS 8.6 has generated, I was amazed that no one touted the best feature in 8.6: the new graphing calculator! Wow! How could you not mention this gem?—DOUGLAS PEASE

We were planning a cover feature for next month titled, "Get a Load of the Graphing Calculator: Mac OS 8.6's Best Feature!" but now that you've ruined the surprise, we'll have to think of something else.

Thanks a lot.

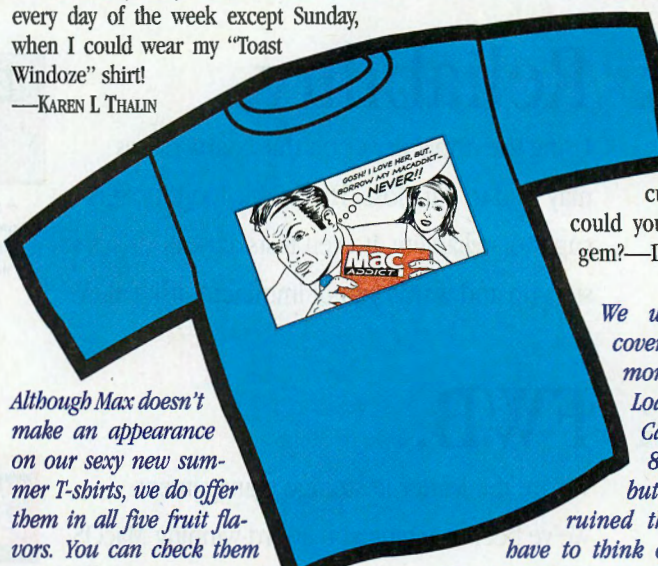
MMM, DONUTS...

Hey, I'm moving to California soon. Do you think it would be OK if I stopped by your office sometime to have coffee with all of you? I'll bring the donuts.—RICH YEAGER

PARTITION PETITION

Perhaps partitions aren't necessary on drives that are 4GB or smaller, but here's a good reason for having at least two partitions.

Whenever I upgrade to a different Mac OS, I keep the old one on the other partition as another startup drive. If I run into prob-



lems, or some programs won't run with the latest OS, I can just restart from the other drive. It's also useful if you have a disk corruption that prevents you from starting up—instead of making the sad Mac face, your (smart) Mac will start up from your other partition.

As a helpful tool, keep a different startup screen in each partition's system folder so that you know immediately if there's a problem.

—RICH PLATT

WE FEEL YOUR PAIN

I heard somewhere that Apple wasn't allowing magazines to include Mac OS 8.6 on accompanying CD-ROMS. Are you still going to have 8.6 on The Disc? I hope so, as it's a heck of a pain to download.

—DAVID KELLEY

You heard right. Apple will no longer allow us to distribute its updates on The Disc. If this gets you angry, we suggest you let Apple know. But be nice, now.

DO STICK FIGURES DATE?

Did you ever wonder what a Mac addict does on really boring days at school? Well, I drew a girlfriend for Max. Her name is Maxine. Have fun, Max. —ALEX LUHRMAN



WE DON'T NO

I've been thinking about buying a Village Tronic 3D card, but on page 77 of your June issue they spell the word "ordinary" wrong in their ad. Now how are we supposed to trust a company who can't even spell right? —ANDY WINGER

WE'RE STAYING NEUTRAL

Have you noticed that the "y" of Geneva changed in MacOS 8.6? The part of the letter that extends downward is curlier. I don't know why this seems so obvious to me, but it is. —MATTHEW J. WAGNER

YOU KNOW YOU'RE A MAC ADDICT WHEN...

...you insist to your wife that your hotel room number is actually 604e. —Christopher Bischoff

...you used to bleed in six colors, but now you bleed in five fruit flavors and you sneeze Bondi blue! —Dale Critchley

...you tell kids to HFS+ their food so they don't choke on large pieces. —John Boero

...the only TV in your house is a Macintosh TV. —Kevin Luedtke

...you go to McDonalds and ask for an iMac, then expect them to call you back to the counter and ask, "Would you like a floppy drive with that?" —Pedro Henriquez

...someone asks how you are doing, and you respond with "Freakin' awesome," "Spiffy," "Yeah, whatever," or "Blech!" —John Kormas

★ Ranked TOP 1% of 1998 Software Reviewed ★

Macworld
★★★★



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Sometimes bad things do happen to good computers. Your screen freezes. (Along with the blood in your veins.) Or your 6-months-and-almost-done project is accidentally thrown out with the trash. (Hello?) Or files are mysteriously "corrupted." I just don't have the time to reconstruct my docs, files, bookmarks, fonts, preferences, financials, reports, and e-mail. Do you?

My hard drive just crashed.

Retrospect Express provides automatic protection for everything on your Mac at a no-brainer price. It's never been easier to back up your hard drive (and everything on it) to Zip, CD-R, Jaz, or even to the Internet. With small and home offices among those hardest hit when disaster strikes, the laws of probability guarantee that sooner or later, your number will come up. But for less than \$49, Retrospect Express guarantees that you'll be smiling when it does.



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Gadgets, widgets, and doodads for your Mac-centric lifestyle.

Plug-and-PlayTime

These are a few of our favorite USB things

When Apple bet the farm on the Universal Serial Bus, it hoped that this cross-platform standard would give Mac owners access to more and cheaper gadgets. Well, the gambit worked, and now it's all we can do to keep up with the ever-increasing pace of USB peripheral introductions. Let's take a quick look at some of the most enticing of the recent arrivals.

Video In: For sheer gee-whiz appeal, nothing beats video capture widgetry. XLR8's cute little InterView pipes color video from your VCR or camcorder right into your USB port, and its \$99 price tag includes a copy of Strata's VideoShop 4.5 (<http://www.xlr8.com>). Other video-slurping options include Avid Cinema for iMac, priced at \$299 (<http://www.avid.com>), and Ariston's \$109 iView (<http://www.ariston.com>). These devices can suck in 320 by 240 video at up to 30 frames per second.

Public Imaging: Epson has capitalized on the fruitful diversification of the iMac line

by colorizing its Stylus Color 740 printer; the new 740i version sports a translucent blueberry cover, which you can swap out for another color to match your iMac (<http://www.epson.com>). Hewlett-Packard started off a little behind the USB curve, but its new DeskJet 800 series of Mac-compatible USB printers may make amends (<http://www.hp.com>). On the scanning front, Umax's Astra 2000U and 2100U models are priced to please at \$129 and \$169, respectively (<http://www.umax.com>).

No Disk, No Reward: QPS's Que 4x2x8 is a \$299 rewritable CD drive that offers color-coded case-swapping options like those of Epson's 740i (<http://www.qps-inc.com>). LaCie also offers a CD-RW drive, not to mention stylishly stackable USB hard disks in sizes up to 20GB (<http://www.lacie.com>). And for those prudent folks who like to back up their Macs regularly, Aiwa's \$249 tape drive packs up to 8GB of

incremental backups on a standard-issue Travan tape (<http://www.aiwa.com>).

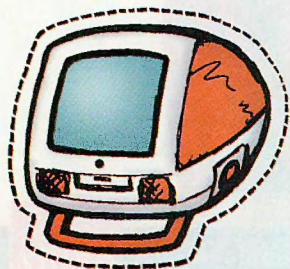
Universal Mousing: Tempted by the plethora of USB mice, trackballs, and joysticks, but perplexed by the paucity of Mac drivers? Rejoice, for USB OverDrive is here! This \$20 wonder widget, from shareware whiz Alessandro Levi Montalcini, lets you use the multiple buttons and scroll wheels of any USB input device, rendering *every* USB mousing gadget fully Mac compatible. Look for it on The Disc this month.—MS



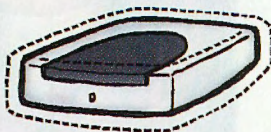
PICTURED HERE ARE EPSON'S fruity Stylus Color 740i, LaCie's sleek USB hard disk, and the miraculous USB OverDrive.

Dress Up Your iMac

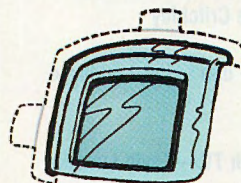
The USB port may be just about the only way to hook up peripherals to your iMac, but it's not your only option for accessorizing the little critter.



CompuCable offers a swivel stand called an iDock that lets you rotate your iMac to and fro, and endows it with serial and parallel ports (<http://www.compuccable.com>).



Enhance the standard-issue display with a TouchStar touch-screen from Troll Touch (<http://www.trolltouch.com>) or an eye-strain-relieving iFilter glare screen from American Computer Optics (<http://aco.usnetcraft.com>).



For that extra touch of color, stick on Freeverse's iVase, a suction-cup flower holder available in the fruity flavor of your choosing (<http://www.freeverse.com>).—MS



I Want My DVD!

New DVD solutions for old Power Macs—we swear.

After several years of our running the headline “DVD Finally on the Mac”, it appears that DVD is finally on the Mac. Apple offers both a DVD drive and the requisite MPEG-2 decoder for watching DVD movies as an option on new Macs. But then again, Apple offers no solution for Mac-wielding DVD fans who still rely on their 7600s, beige G3 towers, and (gasp) even the occasional Power Computing throwback. For those cash-strapped Mac owners, the aforementioned headline is still a bit dubious.

In fact, a search of MacMall, Cyberian Outpost, and MacWarehouse yielded exactly zero DVD options for older Macs. There used to be a DVD-ROM and DVD video decoder combo called CoolDVD from a company named E4, but it went out of business some time ago. However, with a little looking, we finally did manage to dig up a few underpromoted DVD offerings for PCI-based PowerMacs. They weren't easy to find and we haven't had a chance to try out any of them, but they are out there—and hope-

fully more are on the way.

One Mac DVD provider we found was (ironically enough) Phantom Drives (<http://www.phantomdrives.com>). Phantom offers a PCI DVD decoder card with your choice of several different IDE or SCSI DVD-ROM drives. The internal IDE option costs \$329, and SCSI versions cost \$399 (internal) or \$465 (external).

The second complete option we found comes from the online catalog Club Mac (<http://www.clubmac.com>). For \$399 you can buy the catalog's own external DVD-ROM drive and PCI card decoder kit.

If you are willing to part with a few hundred dollars, you may also want to consider a DVD-RAM option—there are plenty for the Mac. LaCie (<http://www.lacie.com>) and Hitachi (<http://www.hitachi.com>) are just two of the companies manufacturing these drives, which support old CD-ROM media, DVD-ROM and DVD movie discs, and the

new read-and-write DVD-RAM discs that hold up to 5.6GB of data. These drives cost around \$700 to \$900, and in order to get them to play DVD movies, you need to pick up a decoder card such as Wired's (<http://www.wiredinc.com>) 4DVD MPEG-2 PCI card. Wired's decoder card will set you back an additional \$219, bringing your DVD-RAM system total to around one grand, but you will have one badass drive setup.—RC

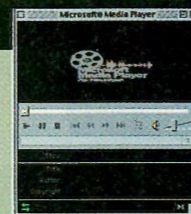


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Screaming Media

QuickTime vs. Real Audio vs. Microsoft Media Player

The last few months we've paid a lot of attention to QuickTime and its new streaming prowess, leaving us with a worried notion that perhaps we've been neglecting other worthwhile streaming media apps. After all, during the QuickTime hubbub, Real Networks released the new RealPlayer G2 for the Mac, and Microsoft even got around to offering a Mac beta of its media player (cleverly titled Microsoft Media Player). So how do these audio-video Web pipelines compare to Apple's foray into Web streaming? Our handy chart will guide you.—RC



Application	QuickTime Player	RealPlayer G2	Microsoft Media Player
URL	http://www.apple.com/quicktime	http://www.real.com/products/player	http://microsoft.com/mac/ie/macmediaplayer.htm
Newest Gimmicks	Streaming, Flash support, plays MP3s	Plays MP3s, vague promise of RealJukebox for Mac	Exists for the Mac
Dubious Distinction	New storage drawer for giant icons is really dumb	Advertising disguised as helpful channel links	Tried to gain popularity by pressuring Apple and bullying Real Networks
Price for Full Version	\$29.99	\$29.99	No money, just your soul
Full Version Provides	Authoring capabilities and additional controls	Higher-quality video and audio, additional controls	N/A
Final Word	QuickTime really got things right (with the possible exception of the interface). The format is great; creating streaming content is easy; and it supports everything. In addition, no corporate shenanigans detract from viewing and listening enjoyment. Definitely our player of choice.	Between the aggressive plus version plugs and the gratuitous ads, all that keeps us from thoroughly disrespecting RealPlayer is that there is so much stuff out there in RealPlayer format. The system works well enough, but the server is way too expensive, and if it pimps itself out any more it'll need platform shoes with goldfish in the heels.	It's hard to say Microsoft even supports its Mac media player—just try finding the thing on Microsoft's Web site. All we can say is that it's there if you need it for some reason.

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The Best Little LAN

Home networking is cooler than ever

Time was when connecting your Mac to other Macs meant setting up a LocalTalk network by stringing together a bunch of AppleTalk connectors or PhoneNet adapters, then watching file transfers *crawl* by at speeds slower than death. And using that network to share a modem between two Macs—forget it. Most folks didn't even know what the Internet was, let alone how to hook up a modem pool.

But times are changing. Two nifty new devices get your Mac talking to others at speeds over four times faster than LocalTalk, and they include cool things such as modem sharing and other features we could only dream about years ago.

Farallon HomeLine

Farallon's HomeLine networking kit takes a concept that PhoneNet pio-

neered and adds speed. First you plug a PCI card into your Mac and connect the latter to a standard phone jack. Then you can use the existing phone wires in your house to set up a home network—just connect a second Mac (or PC) with a HomeLine PCI card into another jack, and your network is ready to go. A HomeLine network won't interfere with normal phone use; you can make calls while using the network connection between the two Macs. HomeLine network speed is respectable, if not zippy—it maxes out at 1 Mbps, one-tenth the speed of standard Ethernet (or roughly four times faster than LocalTalk). Finally, HomeLine comes with a pretty darn good software bundle, including Vicomsoft's SurfDoubler (to let you share a modem connection) and trial versions of Miramar's PC MacLAN and Netopia Timbuktu. The starter kit (which includes two PhoneLine PCI network cards and two RJ-11 cables, plus a software package and a user's guide) costs \$139, while the single-card kit costs \$79. Find both at <http://www.farallon.com> or call 510-346-8001.

Ramp Networks WebRamp

Now here's a combo device with potential. Ramp Networks' little black box, the WebRamp 200i, comes complete with a four-port Ethernet hub, an internal 56-Kbps modem, and a serial port to allow a second external analog or ISDN modem (software that comes with the WebRamp 200i lets users combine the speed of these two modems into one blazingly fast connection). You can also share your Internet connection among those connected through the WebRamp's Ethernet connections (up to 253 users). Ramp Networks is so convinced that the WebRamp 200i is easy to set up and use that the company is offering a money-back guarantee (the WebRamp 200i costs \$369) if users can't complete installation and connect to the Internet in 15 minutes. For more info, contact of Ramp Networks at <http://www.rampnet.com> or call 888-726-7638.—DR

Illustration by Andrew Skwish

Mac OS 8.6 Bits and Pieces

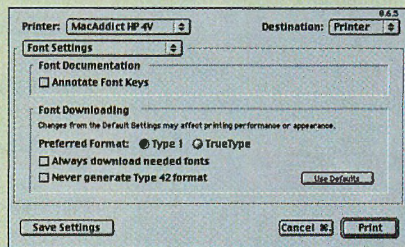
1. A resizable Search Internet window means that Sherlock users will scroll less and accumulate more plug-ins.
2. You can index HTML and PDF files for speedy retrieval via Sherlock's Find By Content feature.

3. Speech recognition now handles 44.1KHz sound, so you can at last talk to your iMac or new Power Mac G3.

SHERLOCK'S RESIZABLE SEARCH WINDOW is one of the only visible changes in Mac OS 8.6.

There's more to know about the new system software release than big-picture stuff, like longer battery life and DVD-RAM support. Herewith, we present our top 10 OS 8.6 trivia items. And remember, all this can be yours via a free download from <http://www.apple.com/macOS>; an upgrade CD is also available, priced at \$19.95 (\$30.95 Canadian).—MS

4. LaserWriter 8.6.5 not only supports USB printers and logs print jobs, but also lets you pick TrueType over PostScript fonts.
5. Dvorak keyboard layouts are included in OS 8.6, to the delight of Esperanto-speaking efficiency nuts.
6. No more eternal server alerts—after two minutes, AppleShare alert dialog boxes time out, and their urgent tidings get saved to a desktop text file.
7. Open Transport 2.0.3 bug fixes should resolve problems with certain brands of cable modems.
8. You can schedule AppleScripts with a third-party program, part of the AppleScript Extras 1.1 package in Apple's software library.



TRUETYPE FETISHISTS can give their favorite type precedence over PostScript.

9. The Help Viewer now supports QuickTime movies in HTML help pages.
10. New developer toys include PowerPC-native AppleScript additions, new multi-processing services, and more formatting controls for multilanguage Unicode text.

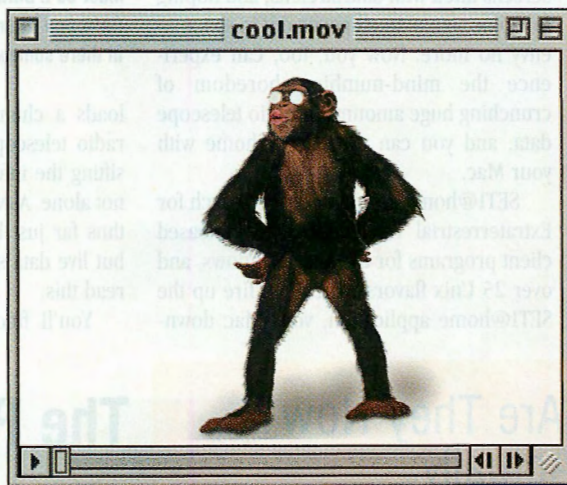


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09:32:66 4/8/99 8mm



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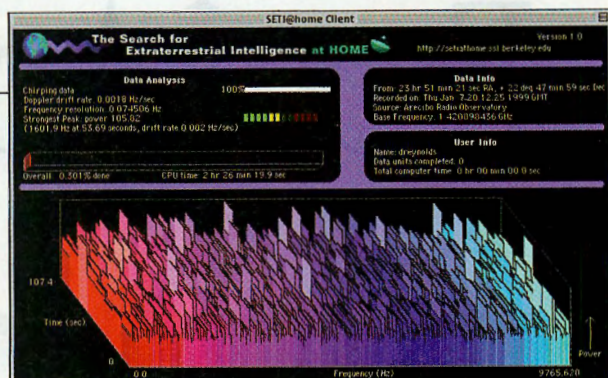
Operators are standing by

If you envied Jodi Foster in the movie *Contact*—selflessly sacrificing hours in front of a bunch of really nifty scientific-looking equipment, watching computer screens filled with data streams, and hoping for some sign of intelligence out in space—envy no more. Now you, too, can experience the mind-numbing boredom of crunching huge amounts of radio telescope data, and you can do it from home with your Mac.

SETI@home, a spinoff of the Search for Extraterrestrial Intelligence, has released client programs for the Mac, Windows, and over 25 Unix flavors. When you fire up the SETI@home application, your Mac down-

loads a chunk of data from the Arecibo radio telescope in Puerto Rico and starts sifting the information for signs that we're not alone. As we write this, SETI@home has thus far just been recycling the same data, but live data should be available when you read this.

You'll find details on SETI@home at



<http://setiathome.ssl.berkeley.edu>, and the project will run for two years, so there's still time to pitch in. If you're looking to join a team of fellow SETI sleuths, we're sponsoring Team MacAddict; go to <http://www.macaddict.com/seti> and join a few hundred fellow Mac addicts in search of little green men and bug-eyed monsters.—DR

Where Are They Now? Dead, Actually

WE BID ADIEU TO YOU, AND YOU, AND YOU. Each day brings news of an exciting new product or company hopping on the Apple bandwagon. But what of the dropouts, the losers, those who give up and bail out? Let's take the time to salute some companies and products who are gone, but not (yet) forgotten.

- **QuickBooks:** Intuit has spiked the Mac version of its business management software. The company will still support the product, and a fix for that annoying total Y2K incompatibility is promised within, oh, the next six months.
- **Micro Conversions:** The developer of the Game Wizard 3dfx card took a bath when cheapskate gamers opted to run Micro Conversions' Mac drivers on generic PC video cards. The company has reincarnated itself as iWonder, and is still in the Mac 3dfx racket.
- **Virtual Game Station:** Having lost the most recent round of its legal struggle with Sony (May/99, p15), Connectix has temporarily halted shipments of its PlayStation emulator. Better luck next appeal!
- **Live Picture:** The company first axed its namesake image editor, then filed for bankruptcy in preparation for MGI Software's buyout.
- **Hewlett-Packard Scanners:** HP remains a laser printer stalwart and is inching back into the Mac inkjet market, but for some reason the company has decided to bail on the Mac scanner business.—MS

The Photoshop Around the Corner

When Adobe Systems bumps Photoshop to version 5.5 this summer, it'll not only gain some fancy new tools and Web-oriented image-preparation features, but also a bundled sidekick. Adobe will roll version 2.0 of its ImageReady Web graphics tool into the Photoshop package, which will keep the same \$610 street price. The company will reward Photoshop 5.0 and ImageReady 1.0 owners for their patronage with a \$129 upgrade, versus \$199 for owners of pre-5.0 Photoshop versions. Budget shoppers should also keep their eyes peeled for the feature-limited Photoshop LE, which will be busting out of scanner bundles and going retail this summer with a low, low price.



IT'S HARD TO EXPLAIN what the art history brush does, but doesn't it look cool?

When Adobe previewed Photoshop 5.5 for us, we were particularly smitten by the clever new masking tools; these let you swab around the edges of the foreground element and subtract out the background colors, or manage trickier masking tasks by marking the edges with a magic highlighter. The new version also replicates ImageReady's Web optimization features with multiple previews and some pretty exceptional GIF-twiddling tools. Throw in browser-safe color pickers, GIF images that display with truly transparent backgrounds, new indexed-color options, and extensive ImageReady integration, and Photoshop 5.5 may finally qualify as an all-in-one solution for Web graphics.—MS



PREVIEW WEB IMAGES FOUR ways to Sunday!

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scrapbook

Taking a closer look at the little things on your desktop.

Pint-Size Powerhouse

by Mark Simmons

We all know that modern-day processors are really, really teeny. After all, the circuit traces on these things are measured in fractions of a micron—a millionth of a meter, or about two-hundredths of the width of a human hair. But it's still amazing how tiny the chip that powers the new PowerBook G3 is. Here's how the trick is done, and how we benefit from this microminiaturization.

Not to Scale

The PowerPC 750 processor, popularly known as the PowerPC G3, has always been a tiny chip—but IBM's latest iteration is smaller still, using a finicky .20 micron manufacturing process and shrinking the die size from 67 to 40 square millimeters. At actual size, the processor you see here measures 8mm by 5mm, and the button on which it's mounted is 1 inch in diameter.

One Size Fits All

Remember when top-of-the-line chips only went into high-priced Power Macs, while budget Performas and power-conserving PowerBooks had to make do with second-rate processors such as the 68LC040 and PowerPC 603? While this is still the case in the Wintel industry, Apple has based its entire product line—from the fanciest blue-and-white minitower to the fruitiest little iMac—on a single processor. The high performance, low power consumption, and efficient miniaturization of the PowerPC G3 have enabled this technological egalitarianism.

A Penny for Your Technology

The secret of this chip shrinkage is, of course, copper. By replacing the aluminum circuitry with copper, a superior electrical conductor, IBM can make its chips smaller—reducing power consumption, increasing the number of chips yielded per silicon wafer, and making it easier to boost clock speeds. Though IBM, as the technology's inventor, has a substantial head start, Motorola is also on its way to going copper.

Long Live the Battery

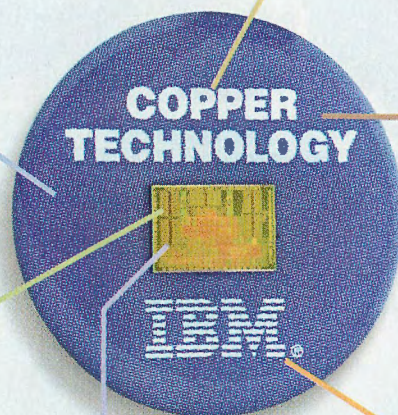
Apple's new PowerBook G3 promises an impressive battery life—as much as five hours per battery, and at least three hours even under power-intensive conditions such as DVD movie playback. Much of the credit goes to Mac OS 8.6's improved power management, but the copper wiring on its IBM-supplied processor also plays a part. IBM's 400MHz PowerPC G3 has a typical power dissipation of 4.7 watts, versus 5.8w for the aluminum-based Motorola version and 6.6w for a 366MHz mobile Pentium II.

Partners in Power

The last year has seen the alliance of PowerPC chip makers becoming somewhat strained. Last June, Motorola took custody of the Somerset design center it once operated jointly with IBM, and the two companies have increasingly found their chip businesses pulling them in different directions (see Sep/98, p14). But now they've found common ground, drafting a road map code-named Book E that will accommodate their divergent needs within a common architecture. Yes, it looks like this marriage can be saved.

The Next Generation

What's next for the PowerPC family? Addressing the two key weaknesses of the G3 line, IBM and Motorola are readying a G4 processor with better floating-point math performance and robust multiprocessing capabilities (see Jan/99, p18). Motorola will also roll out its eagerly anticipated AltiVec vector processing unit, though IBM has thus far indicated that it will take a pass on AltiVec in favor of raw copper-fueled performance.



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AT HOME.



SPEED

FREAK

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BY OWEN W. LINZMAYER

ILLUSTRATIONS BY JEFF FOHL



We're going to show you how to make your Mac abnormally fast by targeting its choke points—processor, system software, drives, graphics, modem—and breaking the bottlenecks. Don't worry if you're not drowning in dollars; we've based our advice on a sliding scale so there's something for everyone, whether you've got no cash, an inkling of cash, or more bucks than Bill Gates. We've also included a few sideshow attractions that will delight and astonish you—but mostly, we hope, inspire you.

So step right up, the show is about to begin. Go to any of our five stages and see how to build your very own Mac speed freak!

STAGE ONE THE CPU

Without a doubt, the central processing unit (CPU) beating at the heart of your Mac has the greatest overall effect on performance, no matter what you're doing with the computer. If Excel takes forever recalculating, ClarisWorks sorts slowly, and Photoshop crawls when resizing images, chances are a poky CPU is holding you back.

The original Macintosh released in 1984 used a 7.83MHz 68000 CPU, and things have gotten tons

faster since then, but the real speed increase came when Apple jumped to the PowerPC. Although fast processors help, performance comes from the interaction of various components, and comparing computers by CPU speed alone is unfair. In general, it's true that the more megahertz, the faster your Mac, but there are many things you can do to get the most out of any processor, regardless of its official speed rating.



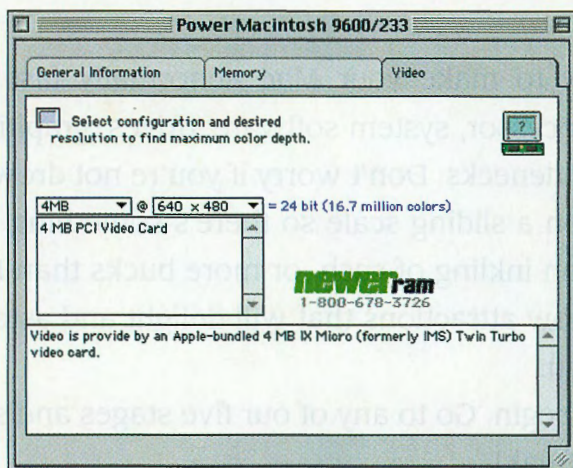
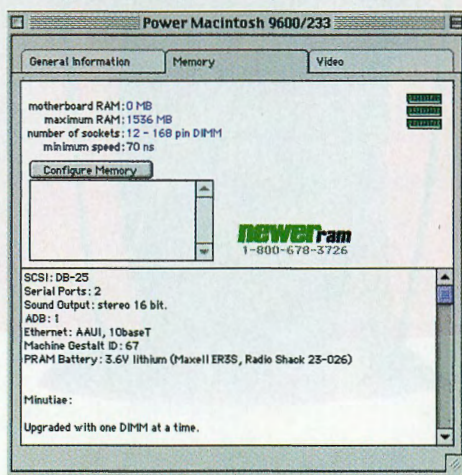
USE MEMORY INTERLEAVING

Some Macs can get a speed boost simply by having the right memory modules in the right places. If you install memory modules of the same size and speed (measured in megabytes and nanoseconds, respectively) in pairs in matching slots, the end result is an overall speed boost of 5 to 15 percent. To find out if your Mac supports memory interleaving, check NewerRAM's Guru (800-678-3726 or 316-831-9800, <http://www.newerram.com>). If the Memory tab has a Configure Memory button, you're in luck! The

latest versions of the Apple System Profiler can also tell you what RAM you have installed in what slots.

USE THE 040 CACHE

If your Mac uses a 68040 CPU, make sure you have the Cache Switch control turned on. The reason you can turn it off in the first place is to provide compatibility with older applications, but it reduces performance by two-thirds. Since most applications have long since been updated for compatibility, leave the control panel set to the On position unless you encounter a problematic program.



GURU, FROM NEWER technology, can tell you how to interleave your Mac's memory for that extra speed boost (above). It also has a separate panel to tell you what flavor of video RAM (or VRAM) your Mac shipped with (left). Finally, we've included a list of hardware vendors if you're looking to upgrade your Mac's hardware (right).

MNEMONIC DEVICE

BOTTOMLINE (800-990-5688, <http://www.blol.com>)

GALAXY HARDWARE PUBLISHERS (888-345-1817 or 541-345-1817, <http://www.galaxyhp.com>)

MACTELL (888-622-8355 or 512-323-6000, <http://www.mactell.com>)

MICROMAC TECHNOLOGY (800-600-6227 or 949-362-1000, <http://www.micromac.com>)

NEWER TECHNOLOGY (888-656-8324 or 316-943-0222, <http://www.newertech.com>)

OTHER WORLD COMPUTING (800-275-4576 or 815-338-8685, <http://www.fastermacs.com>)

POWERLOGIX R&D (888-769-9020 or 512-795-2978, <http://www.powerlogix.com>)

PRE-OWNED ELECTRONICS (800-274-5343, <http://www.preowned.com>)

SHREVE SYSTEMS (800-227-3971 or 318-424-7987, <http://www.shrevesystems.com>)

SONNET TECHNOLOGIES (800-786-6260 or 949-261-2800, <http://www.sonnettech.com>)

SUN REMARKETING (800-821-3221, <http://www.sunrem.com>)

VIMAGE (877-484-6243 or 310-225-3979, <http://www.vimagestore.com>)

XLR8 (888-957-8867 or 316-636-5544, <http://www.xlr8.com>)



USE EDO MEMORY

Memory comes in a bewildering array of acronyms, so to head off confusion get a copy of *Guru* for help sorting it all out. If you own a Power Mac 4400, 5500, or 6500 series, or a 6400/200 with an internal Zip drive, using only EDO (Extended Data Out) RAM can increase the CPU's access to the main memory by 10 percent. Even though some other Mac models can use EDO memory, they don't derive any extra benefits from it (and EDO memory can actually harm the 7200), so don't bother paying a premium for EDO modules unless you have one of the supported models.

CHIP THE CLOCK

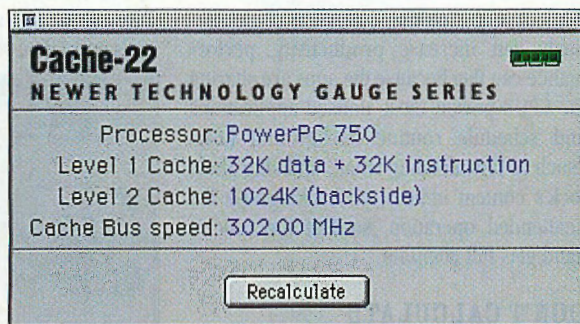
Clock chipping (or overclocking) is a technical, hands-on approach to getting more speed from your Mac. A quartz oscillating clock chip regulates the speed at which the processor runs, and Apple intentionally slowed down some Macs to maximize reliability. If you're good with a soldering iron and don't mind voiding your warranty and risking the errors that can result from overclocking, then by all means consider clock chipping your Mac. For details, see the "Jump Your G3" section in "Void Your Warranty" (Feb/99, p28).

BUY A LARGE L2 CACHE

An L2 cache is a small amount of high-speed memory that serves frequently requested data to the CPU. Check your manual to see if your Power Mac has a special L2 slot on the motherboard. If so, run Newer Technology's freeware Cache-22 ([\[newer.com\]\(http://www.newer.com\)\) to find out if there's a cache already installed, and if so, what size it is. If you don't have a cache, buy the largest cache your Mac can accept. Replacing small caches with larger ones is okay, but be advised that you'll realize diminishing returns—the larger the cache, the more time your Mac spends searching for data that may no longer be in the cache. Once you've installed the cache module, you should immediately notice that processor-intensive tasks such as 3D rendering run 10 to 30 percent faster.](http://www.newer</p>
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BUY RAM

If you don't have enough RAM to run all the applications you want simultaneously, you'll spend too much time quitting apps to switch tasks. Also, programs like Photoshop waste time shuttling data between RAM and scratch files on disk. Buy and install extra memory to put an end to these hassles. Plus, having lots of RAM lets you make use of ultrafast RAM disk techniques.



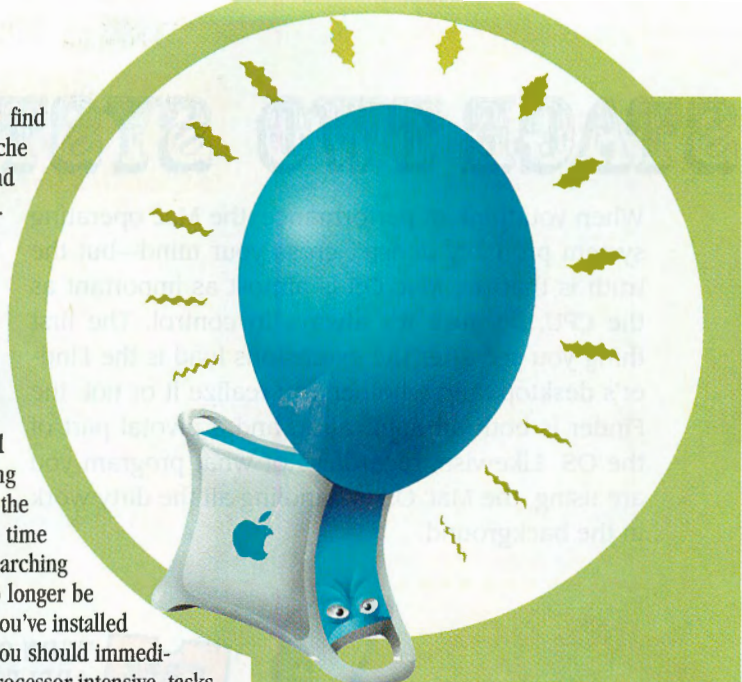
BY ALL MEANS BUY AN L2 cache if your Mac doesn't have one.
Use Cache-22 to find out for sure.



BUY A CPU UPGRADE

If you've got the money, replace your poky old CPU with a faster one—it'll feel like you're driving a whole new Mac. Depending on the model you own, you may have to replace the entire motherboard (which often comes with other speed bonuses such as a faster bus, more VRAM, and so on), the CPU daughtercard, or just the CPU itself.

For middle-age Power Macs (although it's hard to call them that, since they're not *that* old), a processor card upgrade can make even a 9500-class machine as fast as a new Power Mac G3. There are a few caveats, though. Processor card upgrades are expensive, although prices have been dropping quite a bit over the past few months. Also, an upgraded Power Mac won't be able to do *everything* that a new G3 can do, such as running Mac OS X Server and using certain programs that require on-board USB.



THE AMAZING MEZMO

Ladies and gentlemen, step right up and try to stump the Amazing Mezmo...if you can. Mezmo has an insatiable thirst for knowledge, and once he commits a fact to memory, he never forgets it. Mezmo is a blue-and-white G3 tower, which offers the highest memory ceiling of any Mac to date. A full gigabyte of SDRAM, capable of handling the most demanding Photoshop prepress task you can imagine, fills Mezmo's four DIMM slots to the brim. But beware! Mezmo's enormous brain costs as much as a degree from a top-notch community college: each 256MB DIMM lists for \$950 at NewerRAM.

Mezmo backs up his big brain every night using Retrospect, \$174.95 from Dantz Development (800-225-4880 or 925-253-3000, <http://www.dantz.com>). Retrospect works with almost any storage device you can attach to a Mac, and gives Mezmo virtually instant recall of files and folders full of facts. And to ensure he never forgets anything important between backups, Mezmo relies upon FlashBack, \$49.95 from Aladdin Systems (800-480-4011 or 831-761-6200, <http://www.aladdinsys.com>). Every time Mezmo saves a FlashBack-protected file, he adds a page to his photographic memory album; he can retrieve that revision at will.

STAGE TWO SYSTEM SOFTWARE

When you think of performance, the Mac operating system probably doesn't cross your mind—but the truth is that the Mac OS is almost as important as the CPU, because it's always in control. The first thing you see after the extensions load is the Finder's desktop, and whether you realize it or not, the Finder is both an application and a pivotal part of the OS. Likewise, regardless of what program you are using, the Mac OS is handling all the dirty work in the background.

In its unique role as the sole creator of both the Mac hardware and the Mac operating system, Apple can create a computer with superb fit and finish. That's not to say, however, that everything's always optimized to your particular needs. In fact, oftentimes the Mac OS is slowing you down, and you may not even know it. A missing extension here, a poorly configured control panel there, and your precious Mac can devolve from a racehorse to a nag. Instead of putting your Mac to pasture, try these tips.



ROBERTA THE RUBBER MAC

Boys and girls, please avert your eyes if you feel squeamish gazing upon the strange sight of Roberta the Rubber Mac, a computer so flexible she can contort herself into any position and accommodate any peripheral. Roberta began life as a typical Power Mac 9600/350, the last of the towers with six PCI slots. She was a normal baby, with one external SCSI port, two serial ports, an ADB connector, and both AAUI and 10BaseT Ethernet jacks. But her parents wanted more, so they stuffed her five empty slots to sickening proportions (Roberta was born with an IX Micro Twin Turbo video card).

First they inserted an SX Pro Serial Card, \$179 from Keyspan (800-986-9146 or 510-222-0131, <http://www.keyspan.com>), adding four more serial ports. And with the Keyspan IR card (\$259), Roberta could send infrared commands to TVs, VCRs, DVD players, CD changers, and other home theater components. Then came the USB Port PCI Card, \$49.95 from ADS Technologies (800-888-5244 or 562-926-1928,

TURN OFF APPLETALK

If you don't have your Mac connected to an AppleTalk network, open the Chooser and select the Inactive radio button. This prevents the Mac from wasting time during startup looking fruitlessly for a nonexistent network. Likewise, if you aren't on a network, open the File Sharing control panel and make sure both File Sharing and Program Linking are turned off, or disable the extension altogether.

MODERATE MULTITASKING

While running multiple programs simultaneously can increase productivity, performance can flag because the apps are sharing the CPU's power. Close unused applications and schedule routine background tasks (such as downloading email, updating Sherlock's content indices, or backing up) for unattended operation, so that the task at hand gets full attention.

DON'T CALCULATE FOLDER SIZES

If you're running Mac OS 8 or later, deselect the Calculate Folder Sizes checkbox in the View Options window. Otherwise, opening folders in the Finder can take forever. When you need to know how much disk space a folder takes up, do a Get Info on it.

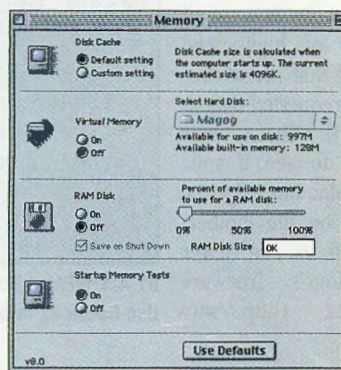
.adstechnologies.com), giving Roberta the ability to interface with a wide crop of USB devices. Next, her fiendish parents added the HotLink PCI FireWire Card, \$179 from Orange Micro (714-779-2772, <http://www.orangemicro.com>), and suddenly Roberta could take on up to 63 IEEE 1394 devices, from hard drives to video cameras.

FORGET FANCY FONTS

The more fonts you have, the more time the Mac OS requires to build the font menu every time you launch a new program. Double-click the Fonts folder inside the System Folder and drag out seldom-used files, or use the \$69.95 Adobe Type Manager Deluxe (800-445-8787 or 408-536-6000, <http://www.adobe.com>) to organize and manage your fonts.

PASS THE RAM TEST

Hold down Command-Option when you open the Memory control panel in Mac OS 8.5 or later. That adds a Startup Memory Tests option at the bottom of the control panel. Turn off the test and you'll save several seconds every time you turn on your Mac.



TO REVEAL THE SECRET Startup Memory Tests option in Mac OS 8.5, press Command-Option as you open the Memory control panel.

Roberta's parents knew no bounds, so they gleefully crammed in a Centronics Parallel Interface/PCI, \$299 from Creative Solutions (800-367-8465 or 410-766-4080, <http://www.creative-solutions-inc.com>), allowing her, with appropriate software drivers, to connect to IEEE-1284-1994 devices primarily reserved for PC users.

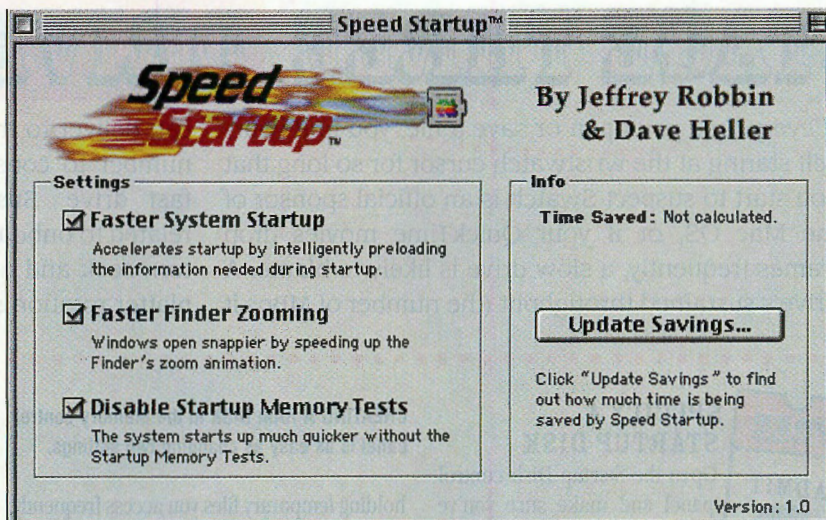


SPEED UP THE STARTUP

For real power users, nothing is as frustrating as waiting for tons of extensions and control panels to load at startup. Speed Startup from Casady & Greene (\$19.95, 831-484-9228, <http://www.casadyg.com>) and Startup Doubler from Marc Moini (\$20, <http://www.marcmoini.com/StartupDoubler.html>) both claim to reduce this wait by optimizing the loading process. Neither produces dramatic results, but Speed Startup gets the nod because it can also turn off the zooming rectangles that appear when windows open.

UPGRADE APPLICATIONS

As the Mac OS evolves, it incorporates new features, and old applications can fall out of step, potentially causing inefficiency and incompatibility within your system. While it's not imperative that you run the very latest version of every program you own, try to use soft-



SKIM SECONDS OFF THE TIME IT TAKES to wake up your Macintosh with Speed Startup or Startup Doubler on the job.

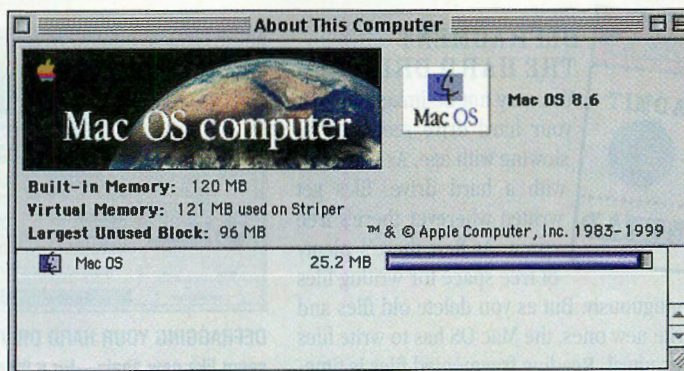
ware released at the same time as the OS you have installed. If you have a Power Mac, make sure your apps are PowerPC native—they'll run much faster. Many upgrades are available

online free or at a modest cost. Check the Web site of the application's maker, or take a look at one of the sites dedicated to tracking upgrades for the latest and greatest fixes.

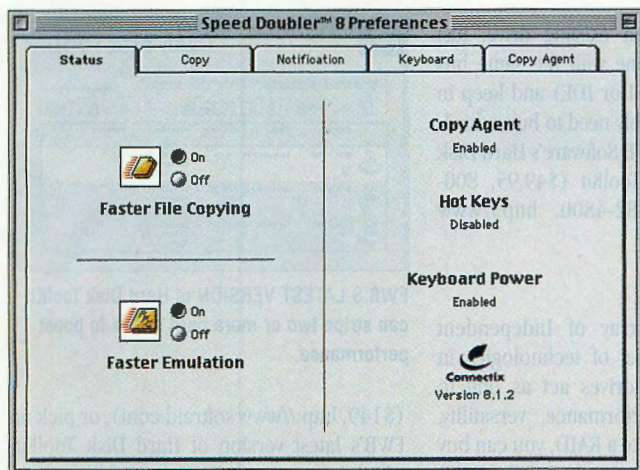


UPGRADE TO THE LATEST MAC OS

The most drastic improvement you can make to your operating system is to replace it entirely. The very latest release from Apple (currently Mac OS 8.6) costs less than \$100—the updater from 8.5 is free, but if you're running 8.1 or earlier, you'll need to buy the retail upgrade. If you are running an older Mac, however, you may be limited to an earlier version. Some users may find that the latest version of the Mac OS seems to slow down their Mac. That could be because the default installation turns on a lot of unnecessary extras. Usually the new features and bug fixes more than outweigh any slowdown you may experience, so it's worth giving a new OS version a try.



OH, SURE, IT TAKES UP more RAM, but think of the time you'll save by not having to restart every 47 minutes. Be sure to turn off unwanted extensions to wring the most performance out of the latest Mac OS.



BUY CONNECTIX SPEED DOUBLER 8

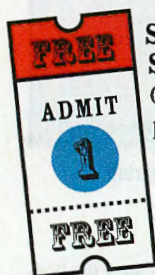
If you own a Power Mac, you need to install Connectix's Speed Doubler 8 (\$49, 800-950-5880 or 650-571-5100, <http://www.connectix.com>). The speedy extension offers much better emulation for older, non-PowerPC native software than the Mac OS. Even 680X0 Mac users may want to consider buying Speed Doubler to take advantage of its other features, such as hot-key shortcuts, faster copying, and Smart Replace, which doesn't copy files if the source and destination versions are identical.

ELEVATE EMULATION SPEEDS
for non-PowerPC-native software with Speed Doubler 8.

STAGE THREE DRIVES

If every time you open or save a file, you find yourself staring at the wristwatch cursor for so long that you start to suspect Swatch is an official sponsor of the Mac OS, or if your QuickTime movies drop frames frequently, a slow drive is likely to blame. A drive's sustained throughput (the number of MBps it

can deliver to the computer) is the most important number to consider when shopping around for a fast drive. Sustained throughput is intimately related to onboard buffers and caches (bigger is better), seek and access times (smaller is better), and platter rotation speeds (bigger is better).



SPECIFY A STARTUP DISK

Open the Startup Disk control panel and make sure you've selected the desired volume as the default. This eliminates time the Mac wastes looking for a drive at every startup.

CREATE A RAM DISK

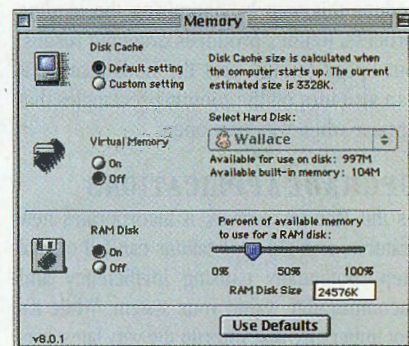
Open the Memory control panel and create a small RAM disk. RAM disks are ideal for

CREATING A RAM DISK in the Memory control panel is as easy as changing two settings.

holding temporary files you access frequently, such as the cache files that browsers create as you surf the Web.

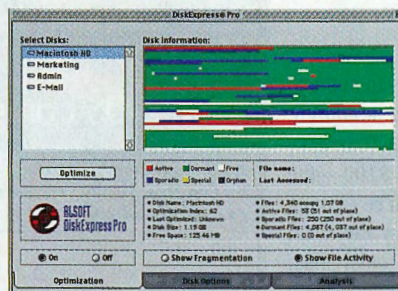
USE THE DISK CACHE

In the Memory control panel, click the Use Defaults button to allocate 32K of memory to the disk cache for every megabyte of physical memory in your Mac.



DEFRAGMENT THE HARD DRIVE

You may not be imagining that your hard drive seems to be slowing with age. As you work with a hard drive, files get written wherever there's free space. At first there's plenty of free space for writing files contiguously. But as you delete old files and write new ones, the Mac OS has to write files piecemeal. Reading fragmented files is time-consuming—the drive's heads race over the disk platters, gathering the scattered bits. Defragmenting, sometimes called optimizing, takes all the pieces and rewrites them into



DEFRAGGING YOUR HARD DRIVE can make it seem like new again—for a little while, anyway.

contiguous blocks your Mac can read more efficiently. Theoretically this improves data access speeds, but in practice you'll notice

the performance increase only on severely fragmented drives with little free space.

Symantec's Norton Utilities (\$99.95, 800-441-7234, <http://www.symantec.com>) has a disk defragmenter called Speed Disk, and Alsoft (\$89.95, 800-257-6381 or 713-353-4090, <http://www.alfsoft.com>) makes a dedicated disk optimizer called Disk Express Pro.

SPEED YOUR SCSI

If you have a fast drive (10 Mbps or faster) connected to the external SCSI bus (which tops out at 5 Mbps), try installing it internally if your Mac has an empty drive bay, or buy a SCSI accelerator card.



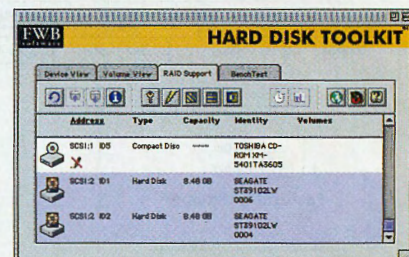
BUY A FASTER DRIVE

If the hard drive in your Mac is more than a few years old, you will often notice a big speed increase if you simply replace it with a new hard drive. Even bottom-of-the-line hard drives have gotten considerably faster over the years. The same goes for CD-ROM drives. The first generation of CD-ROM drives transferred data at 150 KBps. The throughput of newer drives is now measured in multiples of that speed, with high-end drives delivering more than 52 times the speed of the original units.

When replacing an existing drive, just make sure you buy one with the same bus technology (either SCSI or IDE) and keep in mind that you'll probably need to buy a third-party driver such as FWB Software's Hard Disk Toolkit or CD-ROM Toolkit (\$49.95, 800-581-4392 or 650-482-4800, <http://www.fwb.com>).

BUY AN ARRAY

RAID (Redundant Array of Independent Disks) describes a set of technologies in which two or more drives act as one to deliver improved performance, versatility, and reliability. To create a RAID, you can buy a dedicated program such as SoftRAID



FWB'S LATEST VERSION of Hard Disk Toolkit can stripe two or more hard drives to boost performance.

(\$149, <http://www.softraid.com>), or pick up FWB's latest version of Hard Disk Toolkit, which incorporates RAID features.

STAGE FOUR GRAPHICS

The Mac popularized the concept of the graphical user interface (GUI), so it stands to reason that the video subsystem that makes those graphics possible plays an important performance role. Inside

every Mac is a set of chips dedicated to pushing pixels on a display. If what you see isn't what you want—and especially if it's slow to show onscreen—video is the villain.

CORRECT COLOR DEPTH

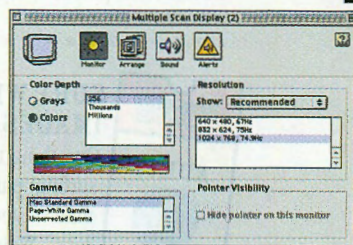
The more colors your Mac displays for 2D graphics, the slower screen redraws become. For zippier redraws and scrolling, open the Monitors & Sound control panel and reduce the Color Depth setting to the lowest possible level. The reverse is true for 3D graphics. When run-

ning programs that use QuickDraw 3D routines, make sure you've set Color Depth to Thousands or Millions for better results.

RENDER RAPIDLY

If your Mac has a 3D accelerator built in or as an add-in card, make sure your applications rely upon the same 3D technology (QuickDraw 3D RAVE, Voodoo, OpenGL) that the card employs. If not, contact the vendors for possible upgrades. Also, check

that hardware acceleration is turned on if your application toggles this feature via software. Lastly, double-check that you have all the necessary extensions installed.



FEWER COLORS MEANS FASTER screen redraws.

ADD VRAM

For most Macs, adding VRAM (video random access memory) doesn't improve system performance; the only benefit is the ability to display more colors at a particular resolution. However, increasing VRAM to 4MB allows a

Power Mac 8500 to drive a monitor and a video device (such as a TV or a VCR) simultaneously. With only 2MB, it can drive a video device, but you must disconnect the Mac monitor. Also, the Power Mac 6100, 7100, and 8100 series normally use stan-

dard RAM for video. Adding a video card with its own VRAM speeds these systems up. Furthermore, increasing the amount of VRAM in an iMac boosts performance in 3D applications. Because it's a special kind of memory, VRAM is typically a little more expensive than regular RAM—but with RAM prices falling as they have, maxing out your Mac's VRAM might be worthwhile. Check to see if your Mac has expansion slots for on-board VRAM or if it gets its VRAM via a PCI or NuBus card. If the VRAM is on-board in sockets (as with the 7300), then adding VRAM is as simple as popping the case and plunking in a module or two.

BUY A VIDEO ACCELERATOR

Installing a video card in your Mac provides the ability to display more colors at higher resolutions. Furthermore, a dedicated video card gives you the option of adding a second monitor. But as far as perfor-

mance goes, the real reason to buy a video card is to get better redrawing capabilities so that everything appears onscreen more quickly. Video cards can accelerate 2D graphics, 3D graphics (QuickDraw 3D RAVE, Voodoo, and OpenGL), or both. They can also speed up full-screen QuickTime playback, and may offer MPEG acceleration. Acceleration cards are popular with dedicated gamers, who crave a smooth, realistic display

of 3D environments. Here's a list of video card and accessory vendors.

ATI TECHNOLOGIES (905-882-2600, <http://www.ati.com>)

GRIFFIN TECHNOLOGY (615-255-0990, <http://www.nashville.net/~griffin>)

IXMICRO (888-467-8282 or 408-369-8282, <http://www.ixmicro.com>)

MACTELL (888-622-8355 or 512-323-6000, <http://www.mactell.com>)

MATROX GRAPHICS (800-361-1408 or 514-685-7230, <http://www.matrox.com>)

NUMBER NINE (800-438-6463 or 781-674-0009, <http://www.nine.com>)

TECHWORKS (800-688-7466 or 512-794-8533, <http://www.techworks.com>)

VILLAGETRONIC (<http://www.villagetric.com>)

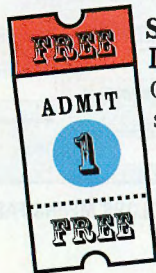
INSATIABLE INGA

Pity poor Inga, a blue-and-white G3 whose hunger for hard drive space is insatiable. Her standard 6GB ATA hard drive wasn't enough to get her past breakfast, so she replaced it with a 25GB IBM drive from ProMax Systems (800-977-6629, <http://www.promax.com>). That simply whetted her appetite, so she paid \$2,695 for ProMax's 100GB TurboMax kit, a PCI IDE card and four 25GB drives—two mounted in the empty bays on the case bottom and two where her Zip drive used to be above the CD-ROM drive. With 125GB of storage in her belly, Inga felt full after lunch, but by evening she was waddling toward her corner computer store to slurp data from up to 63 36GB FireWire hard drives from VST Technologies (978-263-9700, <http://www.vsttech.com>). That's a 2.268-terabyte snack!



STAGE FIVE THE MODEM

A modem is just a device that allows your digital computer to send data over analog phone lines, though with the tremendous fortunes people are making in Internet stocks these days, you'd be forgiven if you thought it had magical properties. Back when telecomputing meant sending text-only email through CompuServe, 300-bps modems did the job well. But today's Web sites are bursting at the seams with streaming video, audio, and multimegabyte files, offered free for downloading. Modem speeds have jumped rapidly from 14.4 to 28.8 to 33.3, and then to 56.6 Kbps, trying to keep pace with the increasing demands placed upon them. Fortunately, you can do a lot to lighten your Mac's load.

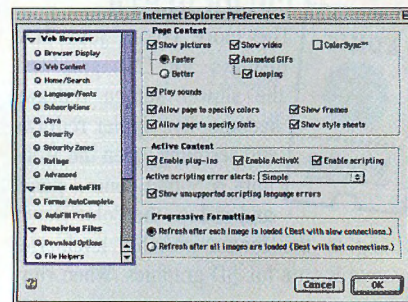


SURF WITH IMAGES OFF

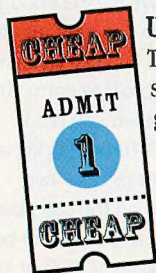
One thing that makes Internet surfing painfully slow is the time wasted downloading useless Web page graphics. Explore your browser's preferences to find the option for turning off image loading. Text-only pages appear onscreen faster; you can always force images to load later.

MAXIMIZE YOUR MODEM CONNECTION

Call your ISP to confirm that it supports connections at least as fast as your modem's top speed, then double-check that the access number in the PPP or Remote Access control panel connects you to the correct bank of modems. If your modem supports error correction, turn it on. Use the most efficient data compression scheme available. Also, set the transfer rate as high as it will go.

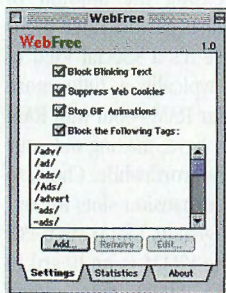


TURN OFF BANDWIDTH-WASTING graphics in Internet Explorer's Preferences.



USE WEBFREE

To keep graphics turned on and still screen out bandwidth-hogging ads, try Steve Falkenburg's WebFree (\$20, <http://www.falken.net/webfree>). This shareware control panel stifles blinking text, suppresses cookies, stops GIF animations, and blocks ads.



BAN ADS with WebFree.

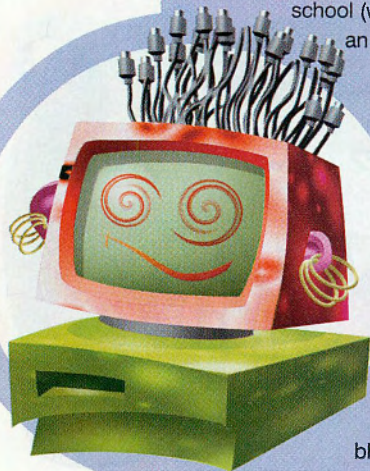
BUY SURF EXPRESS DELUXE

Connectix's Surf Express Deluxe (\$49) replaces

your browser's cache with a more efficient version. The next time you return to a previously visited page, it appears from the Surf Express cache far more quickly than if it had to download again, and even faster than from browsers' built-in caches. The SmartFetch feature makes the most of idle times by downloading changes to your most frequently visited pages, so subsequent requests get served in a snap.

CRAZY CARL, THE QUADRA CANVAS

Crazy Carl never had much use for convention, as witnessed by the fact that he had his first tattoo at age three and began experimenting with body piercing before he graduated grade school (whatever you do, don't get behind Carl at an airport security checkpoint; you'll miss your flight for sure!). Carl went crazy when MacAddict showed the world how to copy his custom-coated paint job (Feb/99, p29), so he had to up the ante. Carl now sports a special startup screen and movie in QuickTime format, a Finder background that changes every five minutes thanks to DeskPicture from Peirce Software (<http://www.peircesw.com>), and 101 Kaleidoscope schemes (<http://www.kaleidoscope.net>) to keep his user interface the freshest on the block—bar none.



BUY A FASTER MODEM

The top speed for standard modems is 56.6 Kbps, and they sell for \$70 to \$150. Given their low prices, it's not worthwhile buying a modem that doesn't support the V.90 protocol (you can usually flash-update modems based upon the earlier competing protocols to V.90 for free). The serial port on Macs before the 68040 CPU may not keep up with the top speeds of today's modems, and there's nothing you can do to increase that speed. If high-speed Internet access is important to you, it's time to buy a new Mac.

Perhaps even 56 Kbps seems slow to you, and you're sure the modem is what's making you wait for online data—not a slow server overloaded with folks downloading huge QuickTime trailers. In that case, you should investigate a world of other more expensive options such as bonded modems, ISDN, cable modems, satellite connections, DSL, and even T1 and T3 lines.

If enough people purchase his book, *Apple Confidential: The Real Story of Apple Computer, Inc.*, Owen W. Linzmayer (owl@bigfoot.com) will be able to afford a faster Mac, eliminating one of his excuses for missed deadlines.

\$50 Off This Incredible Color Scanner. Don't Worry It's Legal.



MICROTEK ScanMaker X6EL

FREE BONUS
35mm slide adapter

Purchase Microtek's legal-size, high-resolution ScanMaker® X6EL color scanner from May 1, 1999 to July 31, 1999 and get a \$50 manufacturer's mail-in rebate (coupon with complete rebate terms and conditions† available at www.microtekusa.com). The 36-bit ScanMaker X6EL is capable of delivering more image data for scans with richer, smoother tonal values than you can get from comparably priced 24-bit and 30-bit scanners. It even includes the LightLid™ 35, a 35mm slide adapter for scanning slides.

The ScanMaker X6EL's push-button design calls up Microtek's ScanSuite™ utility. ScanSuite's presets let you quickly scan photos or documents and route them to your printer for a quick copy, your fax or email software, or directly to Adobe Photoshop LE (included), Caere OmniPage Limited Edition OCR (included), or any favorite application you have on your computer. To access even more image controls and effects, ScanSuite also lets you call up Microtek's award-winning ScanWizard™ scanning software.

†Limited Time Offer.

FEATURES



- Legal-size scan area
- Push-button scanning
- Fast single-pass scans
- 600 x 1200 dpi optical resolution
- 9600 x 9600 dpi enhanced resolution
- LightLid™ 35 - slide/filmstrip adapter

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QuickTime

Gets in Gear

Your ultimate guide
to the new multimedia
monster

BY STEVEN ANZOVIN AND RAF ANZOVIN

QuickTime carried Apple on its shoulders through the valley of the shadow of death, and Apple hasn't forgotten it. With the release of QuickTime 4, Apple has returned the favor by adding new powers to what was already everyone's favorite digital movie technology. What with streaming QuickTime, MP3 playability, a shiny new interface, and a host of other cool-to-quirky improvements, the new QuickTime looks to extend Apple's dominion over the so-called "golden convergence" of computing, movies, music, broadcasting, and the Web.

But Apple's not just resting on its laurels with updates to QuickTime. Taking a new tack entirely, Apple released its first video editing application, Final Cut Pro, at the National Association of Broadcasters (NAB) show back in April. The timing was apt, given the simultaneous announcement by Avid, the leading provider of turnkey nonlinear video editing systems, that it was ending its Macintosh development efforts to concentrate on Windows NT.

While Apple dukes it out with the likes of Avid, RealNetworks, and Microsoft, what can you do with Apple's new media tools? Based on our exhaustive testing of a late QuickTime 4 beta, we'll show you what's right and what's wrong with the new QuickTime Player, get your Web site up and running with streaming QuickTime video, and tour you through Final Cut Pro's brave new world of video editing and effects.

Guide to QuickTime 4

Everything you need to know about QuickTime 4 and QuickTime Player

quicktime

How to Get It

QuickTime 4 is downloadable from Apple at <http://www.apple.com/quicktime>. You can get the free version, which plays everything but lacks authoring and other tools, or shell out \$29.95 for QuickTime Pro 4. We strongly recommend the Pro version. Registered owners of QuickTime Pro 3 can upgrade to Pro 4 for free.

Hardware Requirements

You can install QuickTime 4 on any Mac with a 68020 or newer processor, 8MB of RAM, and System 7.1 or later, but we strongly advise a G3 Mac and OS 8.5 or later.

Streaming playback requires a PowerPC and at least a 28.8-Kbps connection.

File Import

QuickTime 4 substantially increases the number of file formats the program can import and export. The full import roster:

Movie and Animation:
AVI, FLC, Macromedia Flash, MOV, PICS.

Image: BMP, FlashPix, GIF, JPEG/JFIF, MacPaint, Photoshop, PICT, Pictures, PNG, QuickTime Image File, SGI, Targa. Numbered image sequences and layers in TIFF, FlashPix, and Photoshop files.

Video: DV, MPEG 1, TIFF.

Audio Files: AIFF, AU, Audio CD Data (Macintosh), Karaoke, MIDI, MPEG 1, Layer 3 (MP3), Sound, Wave.

Other: 3DMF, Text, Virtual Reality (VR).

File Export

QT 4 Export formats include: AIFF, AU, AVI, BMP, DV Stream, FLC (the Autodesk/Kinetix animation format), Image Sequence movie exporters, JPEG/JFIF, MacPaint, MIDI, Photoshop, PICT, Picture, PNG, QuickTime Image, QuickTime Movie, SGI, System 7 Sound, Targa, Text, TIFF, WAV.

New Codecs

Video compressors: H.261, H.263, Animation, Apple BMP, Apple Video, Cinepak, Component video, DV NTSC and PAL, Graphics, Intel Indeo Video 3.2 and 4.4, Microsoft RLE, Microsoft Video 1, Motion JPEG A and B, Photo JPEG, Planar RGB, Sorenson Video 1 and 2.

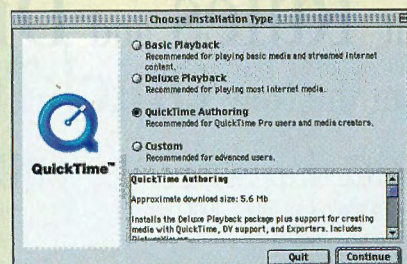
Sound compressors: 24-bit integer, 32-bit floating point, 32-bit integer, 64-bit floating point, ALaw 2:1, AU, IMA 4:1, MACE 3:1, MACE 6:1, MS ADPCM, QDesign Music 1 and 2, Qualcomm PureVoice.

More Video Effects

The video special effects that ship with QuickTime 4 Pro are: Alpha Gain, Blur, Color Balance, Color Style, Color Tint, Edge Detection, Emboss, Film Noise, General Convolution, Lens Flare, HSL Balance, RGB Balance, Sharpen, Zoom.

The New Installer

Taking a page out of Microsoft's book, the QuickTime 4 installer deploys new "smart" updating tech. First you download a relatively small (700KB) stub that asks you whether you want to do a basic or full install of the software. If you use QuickTime 4 Pro, as we recommend, you should install at the QuickTime Authoring level. Once you've installed, an auto-updater checks with Apple for missing or upgraded components. Unfortunately, there's no way to turn off the auto-updater, meaning your Mac must contact an Apple server without your permission—and you may not be entirely comfortable with this. Also, you can't do any install unless your Mac is connected to the Web.



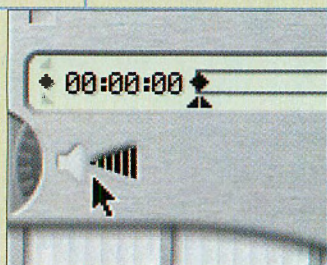
SURE, IT STARTS SMALL, but the new QuickTime installer is just the gateway to much larger files.

20 QuickTime 4 Player

1. Press the Return key or the spacebar to start and stop playback.

2. Double-click the movie window to begin playback; click a playing movie once to stop.

3. Press Shift and double-click the window to play a movie backward.



4. Click the left side of the speaker icon once to turn off audio. Click the right side of the speaker icon once to play audio at full volume.

5. Control-click the Play button to play a movie without sound.

6. Press Command-0 to play a movie at half size. Command-3 fills the screen.

7. Shift-double-click the corner widget to restore the original screen size of the movie.

8. Select a range of frames to play by dragging the start and end markers just under the Progress Bar. Or Shift-drag the diamond on the Progress Bar to select a range of frames.

9. Press Shift-right arrow key or Shift-left arrow key to trim or expand the range by single frames. Drag the diamond marker to the beginning or end of the range, depending on where you want to do the adjustments.

10. Press Command-I to see the Get Info box, then choose Time from the right-hand pop-up menu. It will show you the exact frame range (in SMPTE time code) interactively as you define the range.

11. Command-T plays the range of frames.

12. The Button button opens an audio-video control tray.

13. The I button displays copyright information about the current movie.

14. There's no way to turn off the audio levels display.

15. Drag or double-click the handle at the lower center to open the Favorites drawer, or type Command-open bracket ([). Close the drawer again by dragging up, double-clicking, or typing Command-close bracket (]).

16. Drag in Favorites—links to QuickTime-playable media—from the desktop or a Web browser to the Favorites tray.

17. Command-drag the corner widget at the Player window's bottom right to resize the movie window while maintaining the aspect ratio. Shift-drag the widget only if you want wacky sizes like these three.



What Rules and Drools About the New QuickTime 4 Player

Rules

- Brushed stainless GUI—just like your stereo
- Drop-down standard-issue video controls—just like your VCR
- Bass and treble audio sliders—just like your Walkman with Megabass
- Favorites can bookmark URLs—no browser needed
- Plays everything, including MP3
- Updates itself as needed

Drools

- Ugly Progress Bar with tiny controls
- Can't define a playlist or Favorite set
- Volume control is flaky and forgets the last setting
- No Navigation Services support
- Bass and treble controls don't affect MIDI playback
- Updates itself without your permission



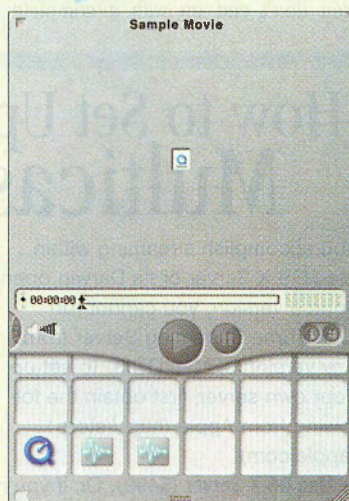
Dennis rocks in the new QuickTime 4 Player.

Secrets

18. Click a Favorite to play it. Drag it into the movie window when there's already a movie there, and QuickTime Player appends the Favorite to the beginning of that movie.

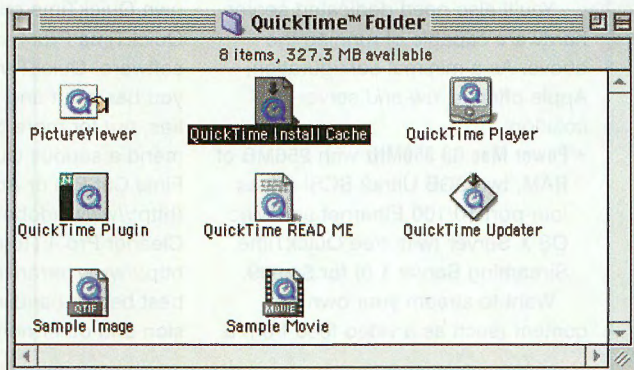
19. Put your Favorites in order by dragging them around the little pigeonholes. For more precision, choose Organize Favorites from the Favorites menu. This lets you order your clips by file name.

20. Repelled by the slick whimsicality of the new QuickTime Player? You can bask in that comfortingly retro look by keeping a copy of MoviePlayer 3 around. You'll still get the new features in QuickTime 4, such as streaming and MP3 playability, and the MoviePlayer controls get an attractive facelift. Sorry, though—no Favorites or bass and treble widgets.



Cheat the Installer

Normally, the downloadable QuickTime installer deletes working installation files once it's done its job, meaning you can't do additional offline installs. But if you're fast on the draw and you haven't installed QuickTime 4 yet, you can fake the installer out. Just copy the cache file the installer makes (it's in the same folder as the stub) as it's doing an installation, drag the copy out of the folder, and complete the installation. To perform additional installations offline, drag the cache copy onto the stub.



MP3 Matchup QuickTime 4 vs. MacAmp

Now you can play MP3 (MPEG-1 Layer 3) audio files in QuickTime 4—a welcome addition. But how does the QuickTime 4 Player stack up against MacAmp (<http://www.macamp.com>, or on The Disc), one of the most popular Mac shareware MP3 players? As it turns out, not all that well.

quicktime

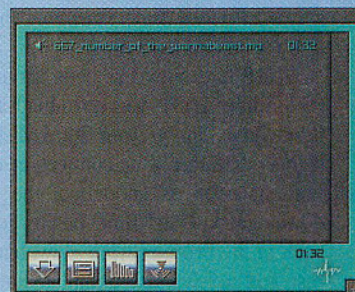
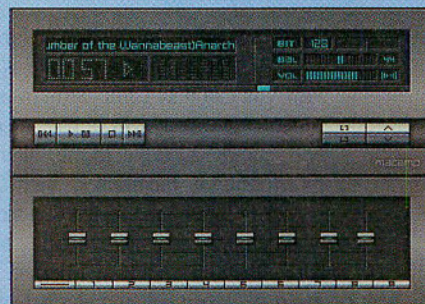
Interface The QuickTime 4 Player is slick, and it has bass and treble controls. MacAmp sports a pedestrian-looking interface, but it wins with more tweakable features like a real EQ (graphic equalizer).

Playlists MacAmp rules here with a real playlist that runs in the background while you do other things, plus list import and export. QuickTime 4 wimps out with the Favorites window, which is not a real play list—there's no file name or ID3 tag to help you identify those generic icons. Worse, you can't set a show to play in the background. Redeeming features: You can collect and arrange your Favorites with drag and drop, and they can be URLs linking you to Web content.

Sound Quality Our subjective judgment is that the QuickTime 4 Player sounded better, with more clarity and detail. This is mainly because Apple licensed the original MP3 codec from the developers of the MP3 format.

The Winner MacAmp, by a length. But don't give up on QuickTime 4 just yet—Apple is bound to fix the clunky Favorites feature.

MacAmp beats QuickTime 4 in an MP3 matchup.



All About QuickTime

Long promised, it's finally here—QT movies that stream directly from a server to any Web user. There are many advantages to direct streaming (as opposed to simply posting a movie to your Web site and having people download it). With streaming, people can see your media play right away—there are no lengthy downloads, and you're not limited to file sizes that make a reasonable download. It's the only way to distribute full-length live events, such as Web concerts. Because many users can tune into one stream (up to 1,000 simultaneous users under Mac OS X Server, and tens of thousands under forthcoming Quick-

Mac that you can save and replay as often as you want. You don't need any special streaming software (other than QT) for HTTP streaming; all you have to do is create a fast-start movie (which you can do from within QuickTime Player) and embed it in a Web page.

RTSP streaming is new in QuickTime 4. It does not download the entire movie to your Mac, but siphons out a thin data stream at a low data rate just adequate to play the movie in real time (after a few initial seconds of handshaking and data buffering, that is). QuickTime displays, then discards the data. You don't end up with a complete

movie file, so you can only see it again by reconnecting to the streaming server. RTSP streaming requires a dedicated Mac running Mac OS X Server with QuickTime Streaming Server software.

QT Streaming Server supports three types of live streaming. Unicast is a simple one-to-one stream, like a phone call. Multicast streams go directly to a group address, such as a series of Web pages, which any number of people can then access. And reflected multicast streams take media from another source, such as a live radio or TV broadcast, and stream it out to viewers. Take a look at Apple's streaming showcase



Darth Maul may look small, but he's assaulting the galaxy via the streaming *Star Wars* music video.

Time-compatible media servers from IBM and SGI), much less bandwidth is needed. Also, you can maintain control over the distribution and copyright of your media. Anyone can download a movie, alter it, and redistribute it themselves, but it's much harder to pirate the content of a stream.

There are actually two types of QuickTime streaming: HTTP (Hypertext Transfer Protocol), often called *fast-start* streaming, and RTSP (Real Time Streaming Protocol), also called *live* streaming.

HTTP streaming has been around since QT3. Under HTTP, you download an entire QuickTime clip to your hard disk at the highest data rate your connection can support. As soon as enough of the clip has downloaded, QuickTime begins to play it back in the browser while downloading the rest. You're left with a complete file on your

How to Set Up for Live Multicast Streaming

You accomplish streaming within Mac OS X Server or its Darwin open-source version; you cannot run QuickTime Streaming Server from any version of Mac OS 8. To set up your own server, first obtain the following from Apple (<http://store1.apple.com>):

- **Mac OS X Server (\$499).** Or, if you're Unix handy, use the Darwin Streaming Server Open Source project (<http://www.publicsource.apple.com/projects/streaming>) to build multi-platform servers.
- **Software Update to Mac OS X,** a free kernel update recommended for all users of Mac OS X Server.
- **QuickTime Streaming Server 1.0** (free update to Streaming Server Preview; comes with Mac OS X Server).

You'll also need dedicated server hardware capable of running the above. As a minimal configuration, Apple offers a low-end server solution:

- **Power Mac G3 350MHz** with 256MB of RAM, two 9GB Ultra2 SCSI drives, four-port 10/100 Ethernet and Mac OS X Server (with free QuickTime Streaming Server 1.0) for \$4,999.

Want to stream your own live content (such as a video feed from a

concert or news event)? QuickTime Streaming Server won't handle this directly—in fact, you'll need a separate AV-equipped Mac (preferably another G3) running the latest version of Mac OS 8 to digitize and compress the live data for streaming. To pipe the prepared data to the server over a high-speed Ethernet connection, use:

- **Sorenson Broadcaster** (<http://www.s-vision.com/products/SorensonBroadcaster>), a \$199 transmitter application that compresses video or audio and configures it for live streaming. Sorenson Broadcaster is currently in beta but should be available by the time you read this.

Finally, if you plan to create your own QuickTime content, you'll need QuickTime Pro 4—enabled authoring software. QuickTime Player Pro gives you basic cut-and-paste editing abilities, but for more control we recommend a serious QuickTime editor like Final Cut Pro or Adobe Premiere (<http://www.adobe.com>). Media Cleaner Pro 4 (Terran Interactive, <http://www.terran-int.com>) is your best bet for handling movie compression and other nonediting jobs.

Serving

(<http://www.apple.com/quicktime/showcase/live>) for examples of live reflected multicast streams.

Moreover, your live streaming can take two additional forms, depending on where the content is coming from. With true live events, the stream functions more or less as the Web version of a TV or radio broadcast; users can turn it on or off and switch to another channel, but they don't get random access to any point in the stream.

When you are streaming a completed movie stored on a hard disk (a sort of video-on-demand arrangement), your audience has random access to the entire stream—

which means that they can jump anywhere within the movie.

You must *hint* QuickTime movies for RTSP streaming. This means creating a *hint track* for each track in the movie. The hint tracks, stored in the movie along with the video, audio, and other tracks, provide QuickTime Streaming Server software with information about the server, the transmission packet size, and the protocol to use (currently limited to Real-Time Transport Protocol, or RTP)—in short, how to send the movie data over the network. (See "How to Make a Hinted Movie" for hinting techniques.)

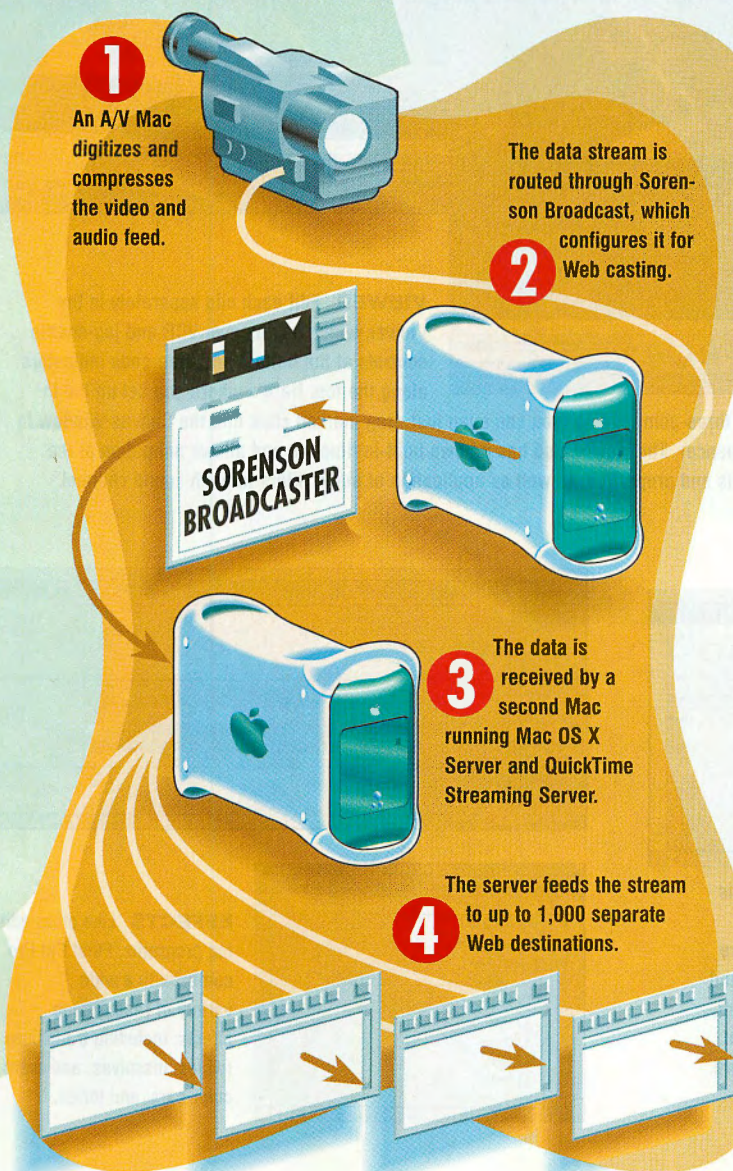


Illustration by Marty Baumann

How to Make a Hinted Movie

Movies intended for streaming via QuickTime Streaming Server need hinting—that is, they need a hint track for every media track. These tell the server how to package the media data for the network. Making a hinted movie is easy as long as you have QuickTime 4 Pro (\$29.95 from Apple) or another QuickTime 4 authoring program such as Media Cleaner Pro 4.

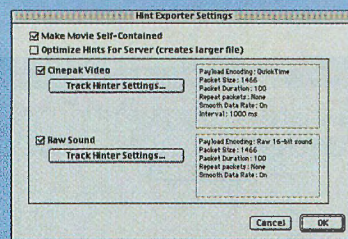
Step 1. Open the movie in QuickTime Player Pro. If the movie is not self-contained, choose Save As and save it as a self-contained movie—otherwise, the hinted movie will contain references to the media tracks in the original movie, which would also have to be on the server. Then

choose Export from the File menu. Name the movie using the .mov suffix. From the Export popup, choose Movie To Hinted Movie if the movie is already compressed and the data rate is set, or Movie To QuickTime Movie if you still need to set those parameters. Then choose Default Settings from the Use pop-up menu; these usually work fine.

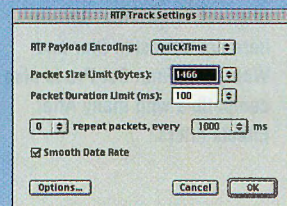


Step 2. If you want to set the compression and data rate, click Options to see the Hint Exporter Settings box.

Check Optimize Hints For Server so that the hint tracks will have the media data embedded in them. That way, the server can read the hint and media track packets all at once, which increases the number of viewers the server can support.

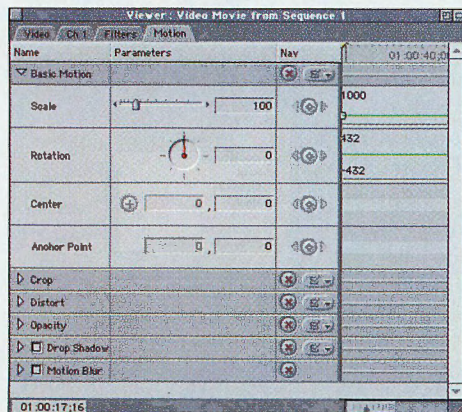


Step 3. From the Hint Exporter Settings dialog box, you can also change the default compressors and data rates for each streamable track. Generally, you won't want to do this without specialized knowledge of each compressor's capabilities.

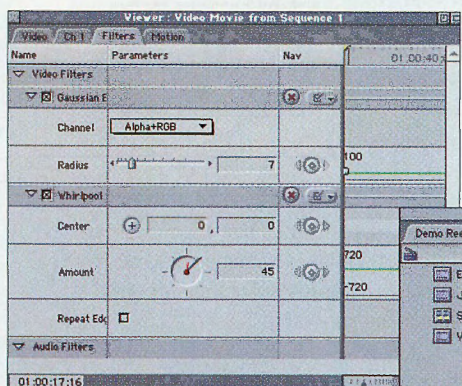


Final Cut to the

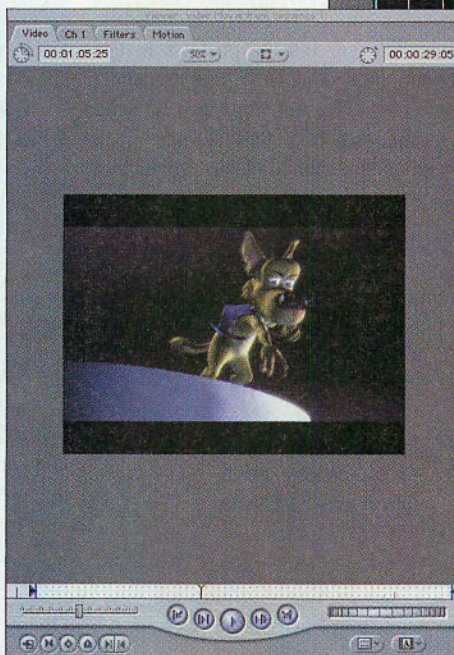
Not satisfied with having the best media architecture around, Apple has taken the plunge into high-end video production software with Final Cut Pro. Final Cut Pro is a sleek, modern app that combines the editing prowess of Adobe Premiere with the effects abilities of Adobe After Effects. Old-time video pros may scoff because it doesn't work exactly like the systems to which they're accustomed, but most Mac video editors who've struggled with the quirks of existing products will cheer.



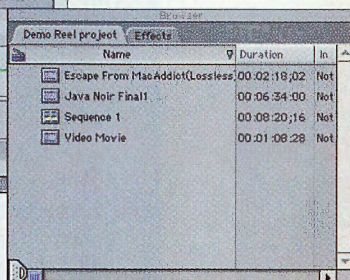
MOTION The Motion tab (in the Viewer) allows animation of layer movement. Scale, rotation (with specifiable anchor point), and other standard motion parameters are all included. Creating a blurred drop shadow is as easy as two clicks.



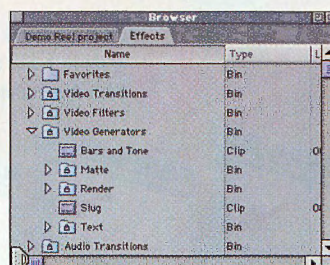
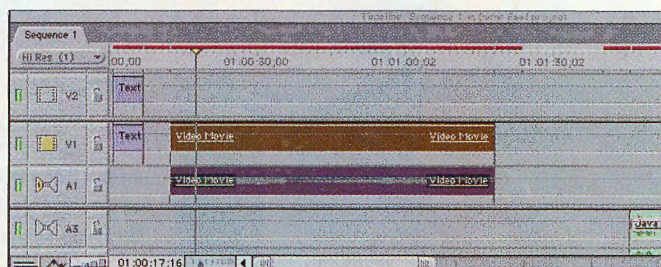
FILTERS The Filters tab (in the Viewer) allows animation of effects attributes. Shown here are Gaussian Blur and Whirlpool. Final Cut Pro is also compatible with many After Effects filters.



VIEWER Edit each clip separately in the Viewer, which has its own VCR and jog-shuttle controls at the bottom and time-code indicators along the top. Here's where you set up the in and out points for three-point editing (you can even just drag marked clips into the Canvas Window to assemble the sequence). The viewer also has its own built-in timeline and allows animation of the layer and its effects and properties, as well as application of audio filters to each sound channel.



BROWSER The Browser is where all the clips are organized. You can open more than one project, then drag and drop sequences between them. You can also access Final Cut Pro's canned effects from here.



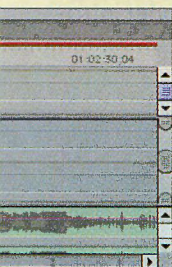
EFFECTS Like other editing programs, Final Cut Pro comes with a wide variety of ready-made effects, including transitions (wipes, dissolves, and such), color bars, and tones.



CANVAS The Canvas window shows the assembled sequence in its entirety. You can manipulate VCR-like playback controls or jog and shuttle controls to find your in and out edit points. A pop-up menu allows you to add clips to the sequence in a number of different modes, such as insert, replace, and superimpose.

TIMELINE The Timeline window displays each clip and track in sequence and allows you to edit them with a number of different tools, as well as scrub through them with the time marker. The red bar

above the timeline represents the area of the sequence you haven't yet rendered. Apple wisely copied After Effects' timeline scroll bar design—it's the best scroll bar ever invented.



Steven and Raf Anzovin have covered 3D animation, graphics, and multimedia since *MacAddict's* first issue. Check out their creations at <http://www.javanet.com>.

Getting Video In and Out

Because Final Cut Pro was written from the ground up to take advantage of FireWire and digital camcorders, its video I/O is extremely easy and intuitive. Final Cut Pro can directly operate most DV camcorders or VCRs through FireWire, giving you the total tape control that once only video jockeys spinning turnkey editing systems enjoyed.

Here's an example of what Final Cut Pro's I/O control can do to save you time. Let's say you're using normal composite video digitizing equipment to pull in some clips from tape. You cue up at the place you want to start digitizing and roll tape. The digitizing software shows the video in a small window; you record parts of the video as it goes by. But press the Record button too late or drop some frames, and it's back to the Rewind button for you. Digitizing the hundreds of clips that go into large movies can become quite a chore.

Final Cut Pro sidesteps these problems completely. Using a special logging window, you can scrub through your DV source with total random access, just as if you were playing a QuickTime movie—you can go forward, backward, or jump around within the tape. It's easy to pick the start and end points for your clips with single-frame accuracy. Once you've logged each clip, you digitize them all at once—and because this is a FireWire connection, dropped frames are never a consideration.

Outputting to tape is similarly easy. Final Cut Pro allows you to pick the exact place at which you want to start printing your movie to video. It has some handy automatic effects that make things smoother, such as automatic leader and trailer options (these include color bars and a countdown as well as black) and looping. I/O drudgery, be gone!

quicktime

Special Effects

Final Cut Pro not only edits, it does effects, too. Final Cut Pro's compositing and special effects features may not approach the depth and strength of those Adobe After Effects offers, but they do make it possible to create simple, high-quality composites and animated effects, such as layer movements, drop shadows, and blurs, right in the editing interface. This streamlines your workflow considerably.

Final Cut Pro comes with a very large selection of effects—from blurs to chroma keys to bar tone generators—and you can keyframe all the effects with a timeline that copies the best features of the timeline in After Effects. Every control has a function curve you can easily adjust to set the exact timing of the effect. Moving a layer around onscreen is easy, and you do it entirely in the main window. Boolean transfer controls like Add and Multiply, an essential feature for complex effects, are also available.

Final Cut Pro's Text tool is top notch—it's light-years beyond the one in Premiere. It offers very sophisticated animated control: You can animate everything from font size to kerning to the font aspect ratio, and the results look excellent, since Final Cut allows both subpixel rendering and subvalue increments. The only real drawback is that you can only have one text field per layer, but since you can use multiple text layers and see them in real time, you can easily work around this.

And Final Cut Pro can take After Effects filters directly, so you can use lens flares and particle systems right within the Final Cut Pro interface.

Final Cut Pro Tidbits

- Apple is offering a tutorial CD called Final Cut Pro Power Start CD-ROM (800-965-3976, <http://www.straight-scoop.com/finalcutpro>) with a full-length editing tutorial. We highly recommend it.
- The version of QuickTime Pro included with Final Cut Pro requires you to enter the user name "Final Cut Pro" before you can access it.
- Press the Caps Lock key to disable background rendering temporarily. This allows you to adjust all of your settings before rendering a preview and really speeds up most standard operations. Press Caps Lock again when you want to render.
- Final Cut Pro can play back DV streams in real time without any rendering. On the other hand, if your clips are at different resolutions, have varied compression, or are otherwise nonuniform, you have to render the usual way.



Born to

by Chilton Webb

Learn to program on your Mac

As satisfying as using the Mac is, there comes a time when things feel a little, well, small. Where applications used to feel like spacious, never-ending worlds, they now feel like cramped studio apartments. When you reach this point, you've come to an important cross-road in your development as a Mac addict. You've reached the realization that if you want to move forward, you're going to have to roll up your sleeves and start building your own binaries.

If you truly want to command your Mac, at some point you'll have to learn the arcane arts of the Mac programmer. Do so, and your perception of what you and your Mac are capable of will change dramatically. Aside from being able to do nearly anything you can imagine, you get to learn in depth how the Mac OS works, and you get to force your ideas of how Mac software should work (the interface) on others! As a bonus, Mac users have some of the best software development tools on any platform available to them. We'll look at three: FaceSpan (with AppleScript support), RealBasic, and MacPerl. Be warned—these programs range from easy to difficult, so pick your poison carefully. Each tool is better at some things than others.



FIND DEMOS
OF RealBasic
and MacPerl
on The Disc.

Don't expect to become a world-class programmer after reading seven pages. Because we don't have unlimited space, we'll skip over some pretty important points of programming (such as error checking). We won't cover SuperCard or Metrowerks Code Warrior, two insanely powerful Mac programming environments. And we just don't have room to cover the Internet's golden child, Java. But this brief introduction should give you a glimpse into just what it takes to command your Mac fully.

3 Tools at a Glance



FaceSpan

(<http://www.facespan.com>, \$199)
This programming gem works in conjunction with AppleScript to make Mac apps.

Advantages: Easy as cake, can be quite powerful

Disadvantages: Somewhat slow, limited to what AppleScript can do

Best for: Simple utilities



MacPerl

(<http://www.iis.ee.ethz.ch/~neeri/macintosh/perl.html>, free)

This Mac implementation of the Perl scripting environment is great for Web-related programming.

Advantages: Very powerful for pulling information out of a chunk of data, and it's free

Disadvantages: Steep learning curve

Best for: Web-related apps



RealBasic

(<http://www.realsoftware.com>, \$99)
This visual programming environment is great for general-purpose stand-alone Mac apps.

Advantages: Extremely flexible, fairly easy to use, cheap

Disadvantages: Slightly slower than compiled C/C++

Best for: General Mac apps

7 Secrets of Programming

Before you can walk the walk, you must learn to talk the talk. Here's a quick look at key concepts that separate the simple hacker from the bona fide programmer.

Messages



Your program will talk to itself. Often, Programs constantly send messages back and forth between parts of themselves and to and from other programs. How you handle these messages determines how well your program plays with others.

Variables



During the course of running your program, you'll probably want to keep track of various bits of data (such as numbers and strings of letters). Containers for these info chunks are known as variables. Local variables are ones that you can only use in a small part of your program, or that have a specialized use. If several different parts of your program can use the variable, it's a global variable. Some programs ask you to let them know ahead of time what variables you'll be using, what their names are, and what kind of information they will contain. This process is called initializing a variable.

Functions, Subroutines, and Methods



There are times when a program is simply easier to write if you break it up into smaller pieces called functions, subroutines, or methods. Unless *you* are a computer, you probably think in chunks anyway, so this is a good idea. Then, if you want to use one of the smaller pieces, you can call it into action at any time from any other piece. This way, you don't have to write the same things over and over, and your code is easier to read and write. In the same way that we break up thoughts on paper into paragraphs and sentences, you can break your programs into smaller, more logical groups. Although it makes no difference to your Mac, few programmers consider one giant chunk of text good programming style.

Loops



Doing something over and over is boring for humans, but computers are quite good at it. A loop tells a program (and the computer that runs it) to do something over and over.

Decisions



If you want your Mac to do different things based on different actions the user may take, you'll need what programmers call *flow control*. Flow control tells your Mac what to do when different situations arise. These typically follow the "If this happens, then do this; otherwise do that" format.

Error Checking



So what do you do if your users do something you don't expect? What if they move a file around while your program is working on it? What if they try to run your program on a Mac 512K? This is what separates the good programs (and their authors) from the so-so ones. Although error checking is a topic of great importance, we simply don't have room to get into it here. But you should be aware that, despite the usefulness of the type of software we are creating, it isn't finished until you've implemented at least minimal error checking.

Interface



On the Mac, as in most of life, how the user employs a tool determines how useful it is. You could have the coolest program in the world, but if it isn't easy to learn or use, few people will try it. To a large extent, the interface also determines what the user thinks is possible to do with your shiny program.

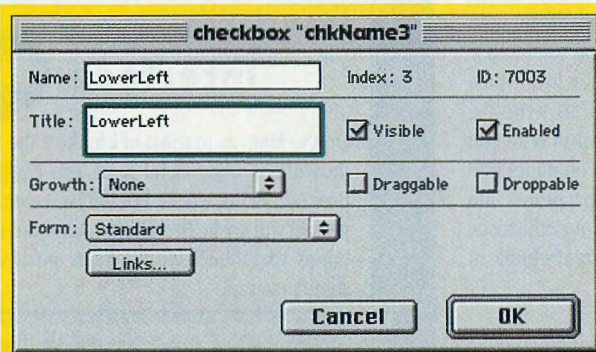
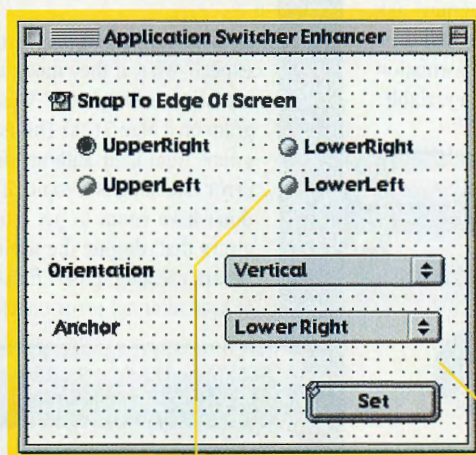
FaceSpan

FaceSpan has its roots in AppleScript, which closely follows the HyperTalk language used in HyperCard. It is one of the easiest programming languages to learn. AppleScript is probably the strictest variation around, but once you get a few basics down, it's relatively easy to pick up the rest. FaceSpan builds on the AppleScript language by adding powerful graphic user interface elements like scroll bars, editable text fields,

specialized buttons, and more. To make a FaceSpan app, you just attach AppleScripts to user interface items in a FaceSpan window. You can create nifty Mac utilities with AppleScript and FaceSpan in a short time.

A couple of AppleScript notes: First, AppleScript deals with either an event that occurs (such as a mouse click), or a command you're giving. Before sending commands to an application, you surround those commands

with Tell and End Tell statements. Second, AppleScript is a little odd about how you put data into variables. If you want to put the number 4 into a variable, `tTaxesOwed`, you will input "copy 4 into tTaxesOwed". This is slightly different from most programming languages, in which you would make a statement like "`tTaxesOwed = 4`". The copy part of the script throws most new AppleScripters the first few times.



What You'll Do

Our goal here is to create a simple tool for enhancing the Application Switcher that ships with Mac OS 8.5 and later. Most Mac users don't know about the special capabilities the Mac OS Application Switcher possesses. We will use FaceSpan to create a cool little program that allows us to:

- Toggle the frame around the Switcher's floating window on and off.
- Set its anchor point.
- Set its location onscreen.

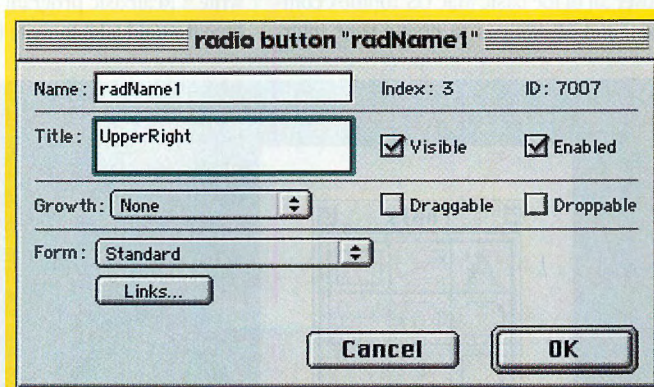
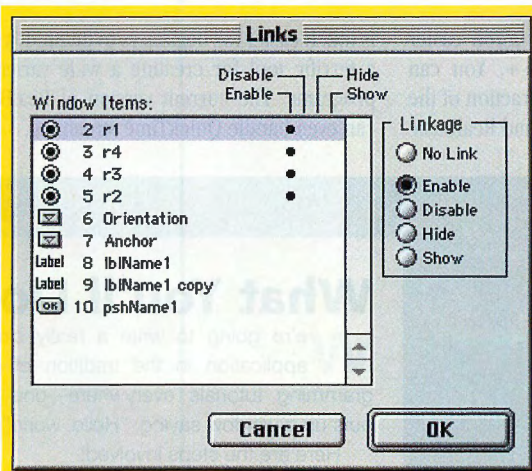
When we're done, our app will enable us to create a cool little application bar that slides neatly to a corner of the screen.

The first step will be the FaceSpan application itself. FaceSpan uses a palette filled with various user interface tools. In fact, you can even drag user interface elements onto a window. Scripting doesn't get any easier than this.

The first thing we'll do is create a new project with a new window. To do so, we use the New Project menu item and click the New button to create a window. As you can see, there's an interface toolbar off to the left of the window.

After creating the window, we'll drag some of the elements over from the toolbar and line them up. We're using a check box, four radio buttons, two text labels, two pop-up menus, and a standard button to which we'll attach an AppleScript.

Once the elements are in place, we'll double-click the first radio button and change the name. FaceSpan allows you to link objects together by simply clicking a few



buttons. When you click a button, you can enable or disable linked objects easily. We'll use this feature to link the checkbox and enable or disable the four radio buttons (the ones below the check box). To get to the Links window, click the Links button.

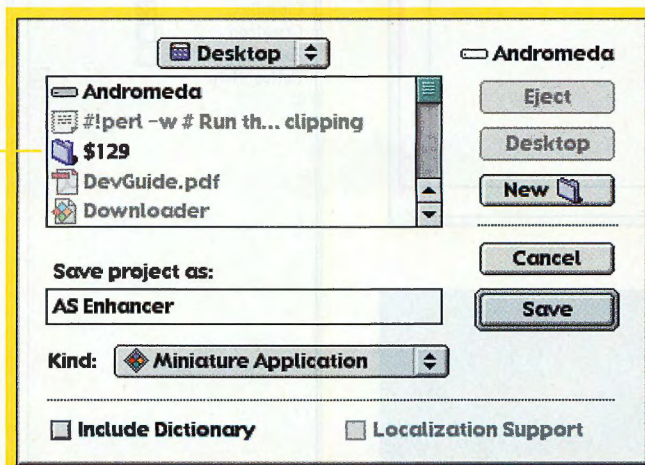
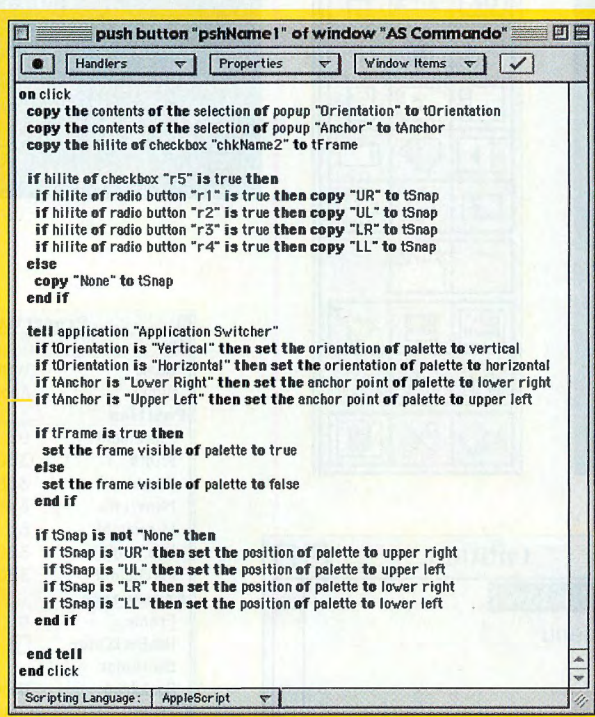
We will then set the names, contents, and titles of each of the elements onscreen by double-clicking each item (labels, buttons, and so on) and changing its properties.

Wow, we're nearly done! Now let's add the magic code to the last button (Set). This will allow our creation to control the Application Switcher. That code is provided here. To attach the code to the button, click the button once and select the Object Script menu item from the Object menu.

You might notice that we first set up the state of the Application Switcher, and then tell the Application Switcher what it should look like. This is how FaceSpan works. It assumes that you're referring to local objects (such as buttons and check boxes) until you specify otherwise.

Save your project and click the Run button to start it up. Note that in the demo version of FaceSpan, your project will only work for a limited number of days. Also, you can't create an application with the demo.

Note: In order for this FaceSpan application to work, you must have the Application Switcher floating window open. Open it by dragging the application menu down until it reveals a rectangle shape, then letting go.



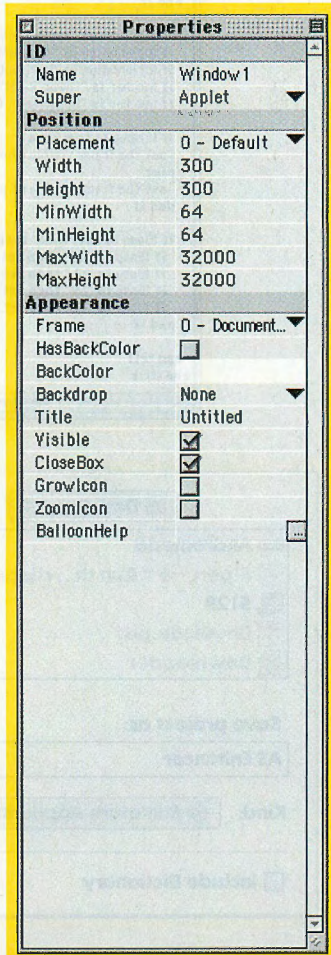
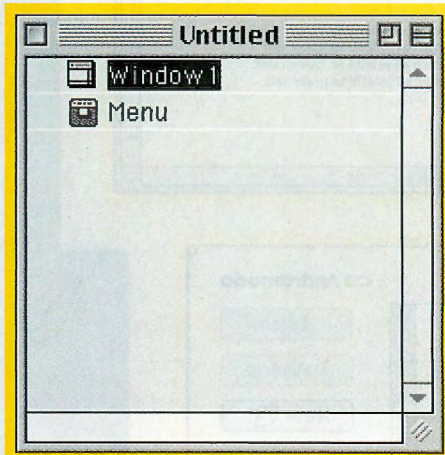
RealBasic

RealBasic is classified as a Rapid Application Development tool. It gives you control over all of the basic Mac OS Toolbox commands, and allows you to create your inter-

face with drag and drop. This is a *ton* easier than programming in C or C++. You can write a RealBasic program in a fraction of the time it would take to write in C, and RealBasic

is much easier for beginners to grasp. It's also a terrific tool for creating a wide variety of programs. The current version of RealBasic can even handle QuickTime streaming.

code



What You'll Do

We're going to write a really simple application in the tradition of programming tutorials everywhere—one that puts up a window saying, "Hello, world".

Here are the steps involved:

- Create a project with a generic window.
- Drop in some code that will print the words "Hello, world" in the window when a user pushes a button.
- Build the application and run it.

When you launch RealBasic, the application will put up four windows on your screen:

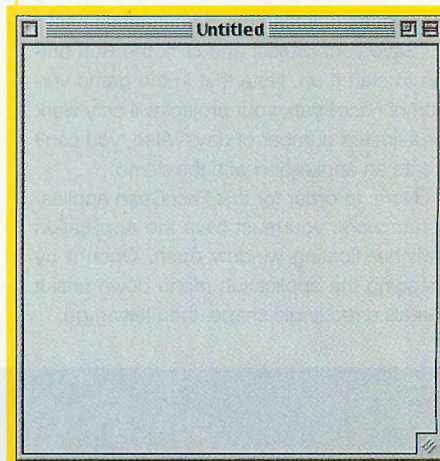
Toolbar This palette contains all of the interface elements you can drop into a RealBasic application.

Project window This is where you'll store the larger objects in your project (such as windows and menus).

Properties window Here's where you can change how objects behave (such as where a window appears and what size it is).

Generic window This is your application's window on the world. It's where you'll create your user interface.

Resize the generic window until it's about an inch tall by about three inches wide. Drag a button from the palette on the left over to



the window on the right, dropping it near the left margin. Then drag a static text object from the tool palette on the left to the window, lining it up on the right side. Resize the text object by grabbing a left corner handle and pulling until the box is big enough to fit "Hello, world"—about halfway to the button.

Click the Untitled button on the left, and in the Properties floating window on the right, change the caption (under Appearance, about halfway down) from Untitled to Say It! Click the text object on the right (the one that says Label) and then change the text field (under Appearance, about halfway down) from Label to nothing by pressing Delete with that text selected. The text object will still be there, but there won't be any text in it.

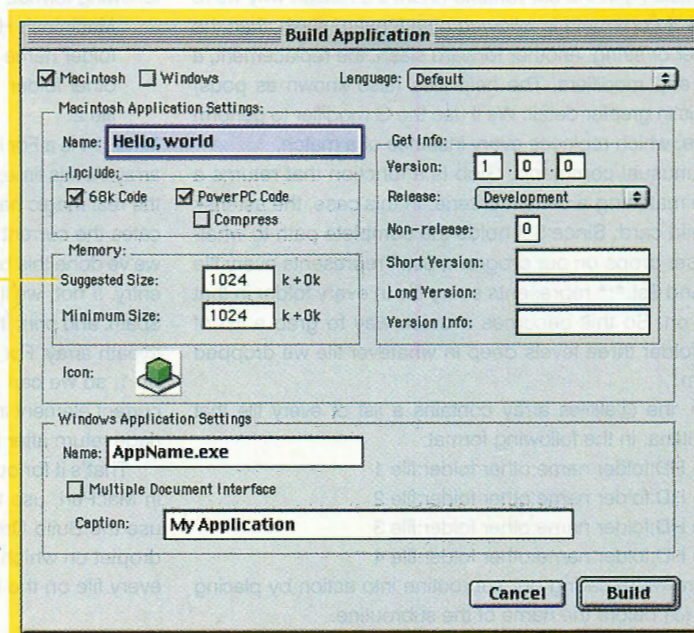
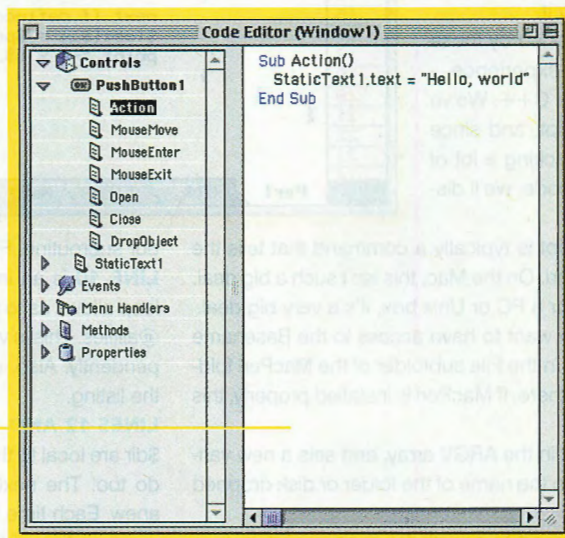
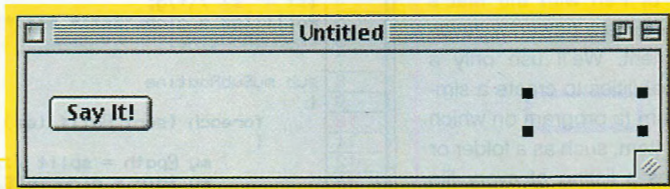
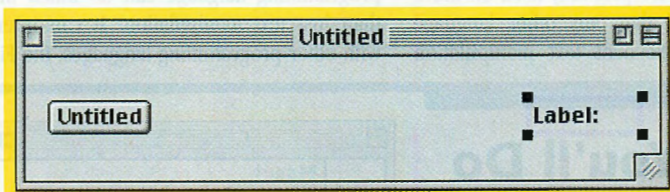
Option-double-click the Say It button. This opens the Code Editor window for the button, which is where the programming magic takes place. Here we'll fill in one line of code that will make the application work:

```
StaticText1.text = "Hello, world"
```

Close the Code Editor window, and save the project somewhere as "Hello World.proj" or some other such name. From the Debug window, select Run. You'll get a window with a button. Press it, and the message "Hello, world" will appear.

Finally, you'll need to build your application. From the File menu, select Build Application, and a dialog box will appear with various settings. Type **Hello, world** in the Name field, check the Include: PowerPC checkbox (we want it to run fast, after all), and press Build. RealBasic will build your application for you in the same place where you saved the project file. Quit RealBasic and launch your new application—it should perform as advertised, and you've just built another great Mac application.

RealBasic can do a *lot* more than this, but this little example will get you started. For more great tutorials, head over to RealGurus (<http://www.realgurus.com>).



MacPerl

Perl is often referred to as the duct tape of the Internet. It's probably used on more servers as a CGI than any other language because of its excellent text manipulation

capabilities. But on the Macintosh, this free programming language can do much more than just text manipulation. It can interact with other programming languages, the Find-

er, and other apps. It is both powerful and easy to use. Developers have built a couple of great Mac utilities on top of MacPerl, including the AutoStart Worm hunter, WormFood.

code

What You'll Do

MacPerl combines the raw text approach of Perl with the Mac's user interface to create a powerful development environment. We'll use only a fraction of its capabilities to create a simple droplet program (a program on which you drop another item, such as a folder or a file) that creates a listing of every file and folder three levels deep from any folder or disk you drop onto it.

This is thick stuff, best tackled by those with some programming experience—whether it's AppleScript, C, or C++. We've created our sample Perl script, and since Perl is rather infamous for packing a lot of punch into very few lines of code, we'll dissect it line by line.

The first line in a Perl script is typically a command that tells the computer where it can find Perl. On the Mac, this isn't such a big deal. If you're writing Perl scripts for a PC or Unix box, it's a very big deal.

LINE 2 tells MacPerl that we want to have access to the Basename script. That's a script located in the File subfolder of the MacPerl folder, so we tell MacPerl to look there. If MacPerl is installed properly, this line shouldn't change.

LINE 3 obtains the first entry in the ARGV array, and sets a new variable, \$st, to it. This will contain the name of the folder or disk dropped on the droplet.

LINE 4 uses Perl's S command to search for spaces and replace them with asterisks (*) in the \$st variable (there's a reason why we're doing this). The S command is followed by a forward slash, then the search character or string, another forward slash, the replacement, a forward slash, and modifiers. The help files (also known as pods) explain all of this in greater detail. We'll use the G modifier to perform a global replace, which replaces every instance of a match.

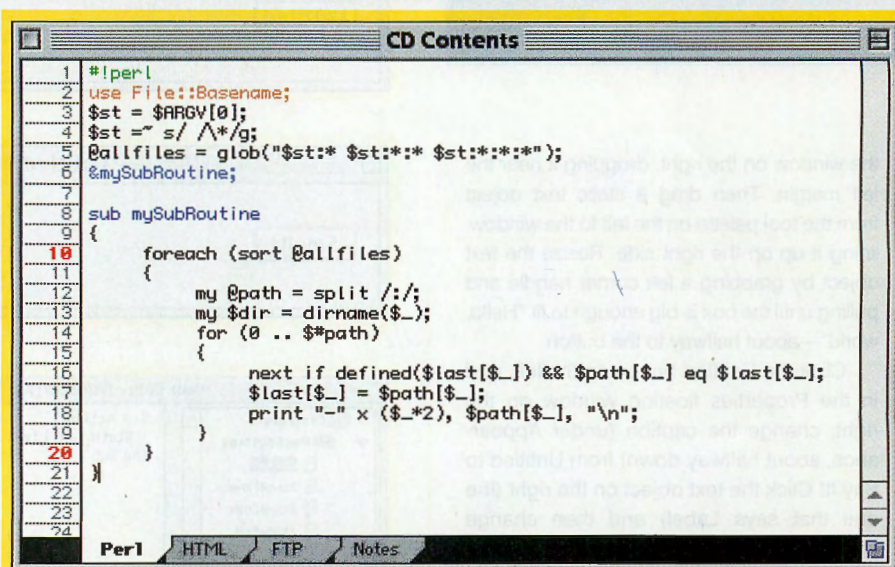
LINE 5 is an unusual command. Glob is a function that returns a list of every file matching a certain criteria. In this case, the asterisk represents a wild card. Since \$st holds the complete path to whatever folder a user drops on our program, \$st:* represents every file in that folder. And \$st:*.* represents every file in every folder in that folder, and so on. So this becomes a quick way to grab a list of every file and folder three levels deep in whatever file we dropped on our program.

At this time, the @allfiles array contains a list of every file that matches our criteria, in the following format:

```
Macintosh HD:folder name:other folder:file 1
Macintosh HD:folder name:other folder:file 2
Macintosh HD:folder name:other folder:file 3
Macintosh HD:folder name:other folder:file 4
```

LINE 6 is where we're calling our subroutine into action by placing an ampersand (&) before the name of the subroutine.

LINE 8 is the beginning of our subroutine, as the word *sub*, followed by the subroutine's name, indicates. Brackets enclose the body of



our subroutine. For the sake of clarity, we've indented its contents.

LINE 10 is an interesting loop almost unique to Perl. The Foreach loop allows us to perform a series of actions on each loop in the array @allfiles. This is very useful because we want to look at each file independently. Also, we're using the Sort command here to alphabetize the listing.

LINES 12 AND 13 are telling MacPerl that the variables @path and \$dir are local to the loop they're in. When the loop ends, the variables do too. The next time through the loop, the variables get created anew. Each time through the loop, the @path array contains a list of every portion of the path name of the current line of @allfiles, in the following format:

```
Macintosh HD
folder name
other folder
file 2
```

LINE 14 is a For loop, which iterates once for every item in the @path array. At this time, the @path array is a list of every path. This is where the real magic happens. In this case, \$_ refers to a number that indicates the current entry of the @path array. We'll first check to see if we've done this before. If so, we'll just start the loop over with the next entry. If not, we'll set the variable \$last equal to the current entry in \$path, and print the appropriate number of dashes for this entry in the @path array. For example, if we're one level deep in a folder, \$_ will be 1, so we can just print one dash. Then we print the name of the current element in the @path array. Lastly, the \N marker adds a carriage return after this entry.

That's it for our Perl script. Simply save it as a droplet. To do this in MacPerl, use the Save As item in the File menu. In PerlSlinger, use the Build Droplet item in the MacPerl menu, and you've got a droplet on which you can drag the MacAddict CD to get a listing of every file on the CD!

Chilton Webb runs DevHQ.com (<http://www.devhq.com>), a big Mac developer site, while his new baby, Alexander, runs his life.

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reviews

What's new, what's cool, what you'll positively drool over.

Palm V

HARDWARE

COMPANY: 3Com

CONTACT: 408-326-5000, <http://www.palm.com>

PRICE: \$449 (SRP)

REQUIREMENTS: PowerPC, System 7.5.3 or later, CD-ROM drive, standard serial port (to use HotSync with Mac)



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YEAH, WHATEVER

A few good features, but generally a waste of time and money.



BLECH!

We hate to even blotch our pages with the thing.



FIND THE Palm MacPac 2.1 freeware on The Disc.



Photos by Aaron Lauer

It's been a long time since a piece of hardware has captured our hearts like the Palm V. It does what the Newton was meant to do, but it does it in the right form factor with just the right mix of functions. Also, it works so well with the Mac—better than the Newton ever did. Weighing in at just 4 ounces and measuring 4.5 by 3.1 by 0.4 inches, the Palm V is a joy to hold and use, and it even fits in a shirt pocket—although it's still big enough to mark you as a geek if you carry it there.

The Palm V ships with several built-in applications, including a calendar, address book, email client, memo pad, expense tracker, and calculator—much of which the Palm Desktop software duplicates. (Palm Desktop is available in the MacPac 2.1 bundle, reviewed here.) The applications are straightforward, and you can access the calendar, address book, to-do list, and

notepad through buttons on the front. (These buttons also double as controllers for games and other software.)

The Palm V sits in a cradle that doubles as a recharging station and serial connection to your Mac. Once you have your Palm hooked up, swapping data is easy—just push the HotSync button on the front of the cradle. Installing software on the Palm V is also a breeze. Just download an application to your Mac, drag it onto the HotSync Manager icon, and press the HotSync button. The application installs on your Palm V, ready for use.

The Palm V's user interface is familiar to anyone who has ever used a Newton; even the fonts look similar. Although the Palm does

OBJECTS IN MAGAZINE MAY BE SMALLER than they appear. The Palm V is shockingly small—and pretty dapper, too.

handwriting recognition by making you write in a specific area with a specialized set of characters (the proprietary Graffiti), the process takes almost no time to learn and is accurate enough for small projects. Writing a long document requires patience, however.

Palm Modem

The Palm Modem kicks butt, plain and simple. This little piece of hardware snaps onto the back of the Palm V or other Palm models, and provides clean, reliable 33.6-Kbps connections (this is more than I can say for my Mac's 56-Kbps modem, which seems to drop connections in a stiff wind). Using the modem is a snap in more than just the physical sense. Once you have the Palm V configured to recognize the device and have plugged a phone line into it, all of a sudden email and the Web become accessible right from your Palm.

We used a couple of shareware applications to access the Internet through the modem (MultiMail, a \$39.95 IMAP4-POP3 mail client from Actual Software at <http://www.actualsoft.com>, and ProxiWeb 3.02

from ProxiNet for Web browsing, freely downloadable at <http://www.proxinet.com>). Both performed with grace. Email worked fantastically, just as you would expect if you were using a Mac. The Palm Modem can also connect to several different flavors of Nokia and Ericsson cell phones (with a separate GSM connection kit). You'll pay a price for all of these premiums, though. The Palm Modem costs \$169, which is awfully expensive for a 33.6-Kbps modem.



WITH THE SAME DIMENSIONS AS THE PALM V (duh), the 33.6-Kbps Palm Modem can deliver wireless Internet access through certain cellular phones.

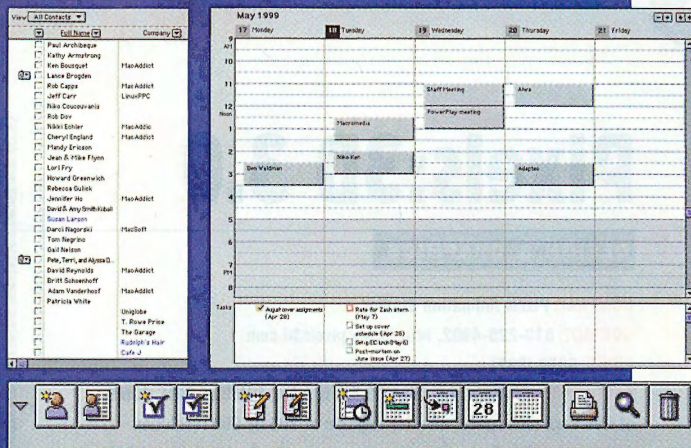
MacPac 2.1

Sometimes the second time's the charm. That seems to be the case with Palm's Mac integration package, MacPac 2.1. Folks who used the original Mac software for the Palm Pilot will be relieved to hear that this time MacPac is great software. The small boxed set includes a Mac serial adapter, Palm Desktop organizer software, a quick-start guide, and a customer service card. It's everything you need to hook your Mac to your Palm, and it's only \$14.95—an extra cost for Mac users, but at least it's a small one.

Users of Claris Organizer (remember that?) will feel right at home with the Palm Desktop software. After all, 3Com purchased it from Apple to form the basis of the Palm Desktop, and it works beautifully. HotSync moves data between Palm Desktop and the Palm V itself, making sure all your data is up to date. Appointments, contacts, and to-do list items created either in Palm Desktop or on the Palm V transfer seamlessly.

A quick-access menu (on the right side of the menu bar) holds important items such as appointments and to-do tasks, as well as providing quick access to Palm Desktop and HotSync. Installation is a breeze, and the software works perfectly once you've configured it, a simple process of telling it what serial port to use for the cradle. We encountered no conflicts when using the software (other than when we tried to cram too many shareware games onto our Palm, which was our fault).

Although it's an additional cost for Mac folks, Palm's MacPac 2.1 package is worth the nominal price. It looks and feels like a real



REMEMBER ME? THE PALM DESKTOP software was formerly known as Claris Organizer before 3Com purchased it and added Palm connectivity functions.

Mac app, and it does most of what its Windows counterpart will do, except for a few shortcomings. The Palm Desktop software doesn't include a painless way to HotSync email or financial data (although there's a third-party solution for each of these). Other than that, MacPac is a perfect Palm companion—and as an added bonus, it even works without a Palm as a great organizer!

Other cool things about the Palm V include an infrared port that actually *does* something. When we pointed it at a Hewlett-Packard HP6 printer, we were able to print from the basic Palm applications using the IrPrint software without hooking up a wire. (For IrPrint, contact IS/Complete, <http://www.iscomplete.com>—it costs \$24.95.) The Palm's display is beautiful and crisp, and it's capable of 16 grays, although few applica-

tions take advantage of this ability. The battery lasts plenty long, too. Palm claims it can last for up to a month of use, and we never came close to hitting empty.

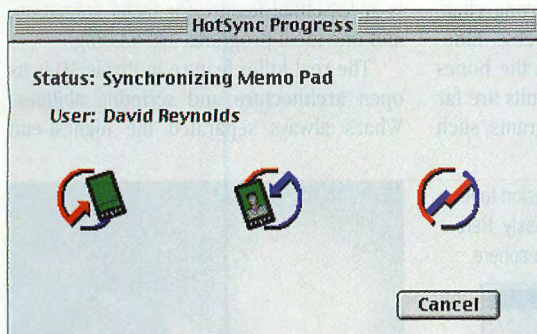
What's not to like? Well, a few things keep the Palm V from winning our highest rating. Mac support for the Palm V costs extra and requires purchase of a separate box. Although MacPac 2.1 is only \$14.95, it's still an extra cost and an extra hassle

Windows users don't have to face. The latest version of MacPac is worlds better than the original, but it doesn't have built-in finance or email conduits on the Mac side, although third parties offer them. Also, you can't expand the Palm V's memory beyond the 2MB it ships with—that's a workable memory limit, but boy, 4MB would sure have been nice. Our final complaint has to do with the backlighting on the Palm V. It works fine in very dark

places, but when the outside lighting is neither bright nor dark, backlighting quality drops, making the display difficult to read. Tweaking the contrast control helps some.

Still, the Palm V has become an important part of our computing life. It's small, it interfaces very well with the Mac, it has plenty of available applications, and it carries a certain geek chic. Despite a few shortcomings, the Palm V is a great way to take computing on the road without lugging around a PowerBook. When the consumer portable comes out, we may have a few new mobile options to consider, but for now the Palm V is ruler of the road.

—David Reynolds



HOOKING UP WITH YOUR MAC was never easier. Just put the Palm on the cradle, push the HotSync button on the front, and the software does the rest. The same cradle-and-software setup can even handle multiple Palms.

GOOD NEWS: Basic HotSync works flawlessly. Easy setup and installation. Finally, a use for infrared technology. Great support via Mac application. Lots of Palm apps, shareware, and accessories. **BAD NEWS:** Not expandable beyond 2MB. Some HotSync functions only available through third-party add-ons. Mac support an extra cost. Oddly tough to read when backlighting is on.



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FUN & GAMES

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Pixels:3D 3.0

DESIGN & GRAPHICS

COMPANY: Pixels Animation Studios

CONTACT: 619-220-4902, <http://www.pixels3d.com>

PRICE: \$999 (SRP)

REQUIREMENTS: PowerPC, Mac OS 8.0 or later, 16MB of RAM, 30MB of free hard disk space, monitor capable of 800 by 600 resolution

RECOMMENDED: Fastest hardware you can afford, with the most RAM

For years, Mac 3D artists have been waiting for a truly professional program, one with the flexibility and raw power of the industry leaders Softimage (now owned by Avid) and Alias-Wavefront's Maya. Pixels:3D, a general-purpose modeling and animation program from Pixels Animation Studios, aims to deliver the goods, but still has some evolving to do.

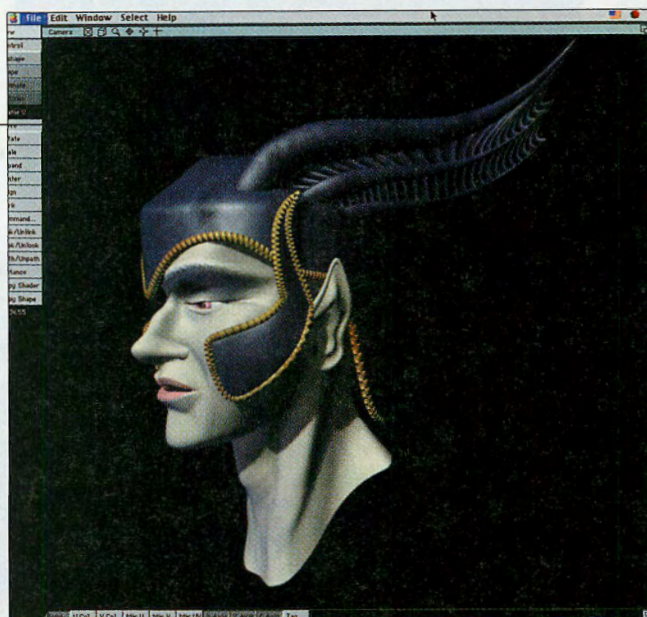
You manipulate Pixels:3D's capable modeling tools within a traditional orthographic triview. You can model just about any spline type known to science, including some odd ones such as Tau and Tensed B-spline not available in other Mac programs. You'll find all of the usual 3D tools in this application—lathes, sweeps, and skinning—as well as Booleans for cutting holes in shapes. The program also offers some unusual (and useful) tools: You can, for instance, collide one surface with another, which makes fitting surfaces together very easy.

One particularly original and useful feature is Fusion. It sidesteps the usual difficulties involved in creating complex branching

objects in a NURB modeler by providing an easy way to blend the object edges.

For example, you can use the Fusion feature to create seamless shoulders for a human model, which is hard to do in many other programs. Fusion is especially useful when you've applied complex textures because it blends textures as well as geometry, a novel feature. However, it still isn't as elegant as Animation:Master's splines, LightWave's MetaNURBs, or other methods that allow a single surface to have a branching topology without requiring you to blend multiple surfaces.

Pixels:3D has surprisingly strong character animation tools. The Inverse Kinematics system is above par, and the bones system is easy to set up. The results are far superior to those of costlier programs, such



PIXELS:3D IS ADEPT AT ORGANIC MODELING and precise texturing, as in this head of an elf warrior.

as LightWave 3D. Since the bones system is based on true point-weighting (meaning you can set the precise percentage of bone influence over an exact set of surface points), unlike the cruder influence-based systems in many other Mac 3D apps, it helps you achieve completely accurate and predictable results. The MorphMaker tool lets you easily make a series of morph targets and blend them together using sliders. This is an essential feature for facial animation, and one most programs are missing.

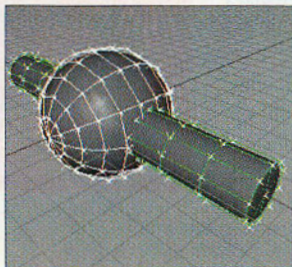
The real killer feature in Pixels:3D is its open architecture and scripting abilities. What's always separated the highest-end

Fusion Power

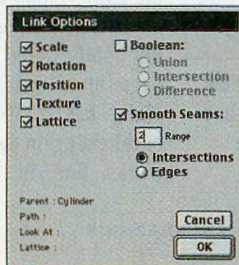
One of Pixels:3D's most interesting features is the Fusion tool, which allows two intersecting objects to fuse seamlessly. Here we'll set up a simple fusion between a cylinder and a sphere.



1 Here's what the cylinder and sphere look like before we apply fusion.



2 Using the Select tool in the Control toolbox, select both objects.



3 Press the Link/Unlink button to link the two objects. The Link Options dialog box appears. Check Smooth Seams and set Range to 2.



4 A new surface now stretches between the two objects, giving them a fused look.


```
History
Bishop 24:Graphics:PIXELS.3D Studio 3.0:
sphere -name Sphere -radius 10 -endSweep 360 -uSteps 10 -vSteps 10
select -r Sphere
move -relative -worldSpace -moveXYZ 15.1667 0.0000 -5.6389 Sphere
move -relative -worldSpace -moveXYZ -18.8611 0.0000 3.3056 Sphere
select -cl
select -r Interest_1 Sphere
select -r Sphere -u 40
```

PROGRAM 3D OPERATIONS in the script window—just like in Maya! Future versions of Pixels:3D may include much greater control over the application, including its appearance.

programs from less professional ones has been the degree to which you could manipulate the architecture of the program from the outside. A completely open program architecture is essential for many production companies, which must “crack” the program to add proprietary features and tools to fit their environments or to get highly repetitive jobs done faster.

Pixels:3D has the most open architecture of any Mac 3D program. Its scripting and History tools, reminiscent of the MELScript features in Maya, allow you to control just about any element of the program procedurally. The particularly useful History window allows you to look at any action you do in the interface as a script. This makes assembling original scripts out of common actions very easy. The next version of Pixels promises even greater scripting control, including the ability to reprogram Pixels:3D to look like just about any other high-end 3D package out there—even Softimage or Maya.

Pixels:3D also has professional-quality shading and rendering abilities. It's the first Macintosh program in ages to take advantage of Pixar's Renderman shader language for describing the look of surfaces. To see the Renderman shaders and the Renderman renderer (often called PRenderman or Photorealistic Renderman) in action, you need look no further than *Star Wars—Episode I: The Phantom Menace* or *A Bug's Life*. This is the renderer Hollywood uses.

The Pixels:3D renderer is Renderman compatible—it can take shaders written in Renderman language directly, or it can export them to PRenderman RIB files. (Although PRenderman is not currently available for the Mac, Pixar has promised it for Mac OS X.)

Pixels:3D also has its own shader editor called Shadermaker, through which you can build very complex shaders without any knowledge of Renderman. The rendering quality is generally high and relatively fast,

although the motion blur tends to have a grainy quality.

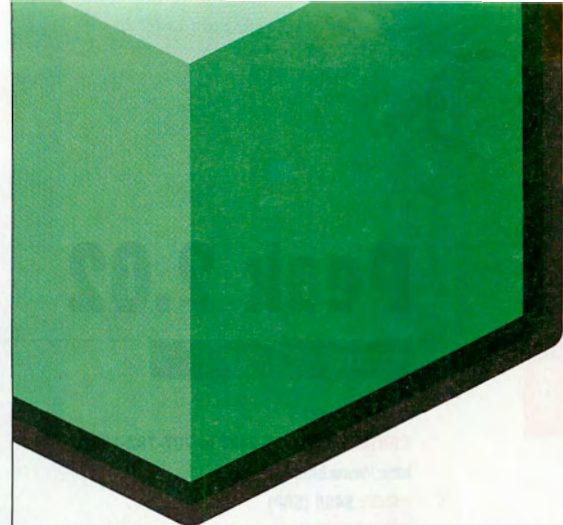
Unfortunately, Pixels:3D bears the burden of a mediocre, too-modal interface (seemingly of Softimage inspiration) that requires you to click too many buttons to get things done. Many keyboard equivalents bear little relationship to normal Mac keyboard shortcuts. You can't, for instance, use the shift key to select a number of points at once, as is the standard in almost all other Macintosh applications.

The animation timeline is a mixed bag. It's got some great features: You can move very quickly between editing keyframes and editing function curves, for example. But the timeline interface itself is a disappointment. The keyframes are represented as big, fat, space-wasting bars, forcing you to collapse the parts of the timeline you're working on to see other parts. Similarly, there's no way to limit or filter what you're seeing, so you have to deal with all of the objects, all of the time.

The worst drawback of the program is that there's no method of setting keyframes automatically. This means every time you change any object, you have to press a keyframe button or you'll lose what you've done as soon as you advance a frame. This can really get in the way when you're trying to animate a big model with lots of moving parts. That such a poorly designed feature found its way into what is otherwise a very sophisticated program is surprising.

Despite its flaws, Pixels:3D still performs well above the level of most other 3D programs. If version 4.0 is all its creators promise it to be, maybe no one will care if Softimage or Maya ever come to the Macintosh at all.—*Raf Anzovin*

GOOD NEWS: Scripting control of all 3D elements. Renderman shaders. Fusion. Weight-based bones implementation. MorphMaker and ShaderMaker. **BAD NEWS:** No autokeyframing. Mediocre interface. Poorly designed timeline.



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reviews

Peak 2.02

AUDIO

COMPANY: BIAS

CONTACT: 800-775-2427 or 707-782-1866,

<http://www.bias-inc.com>

PRICE: \$499 (SRP)

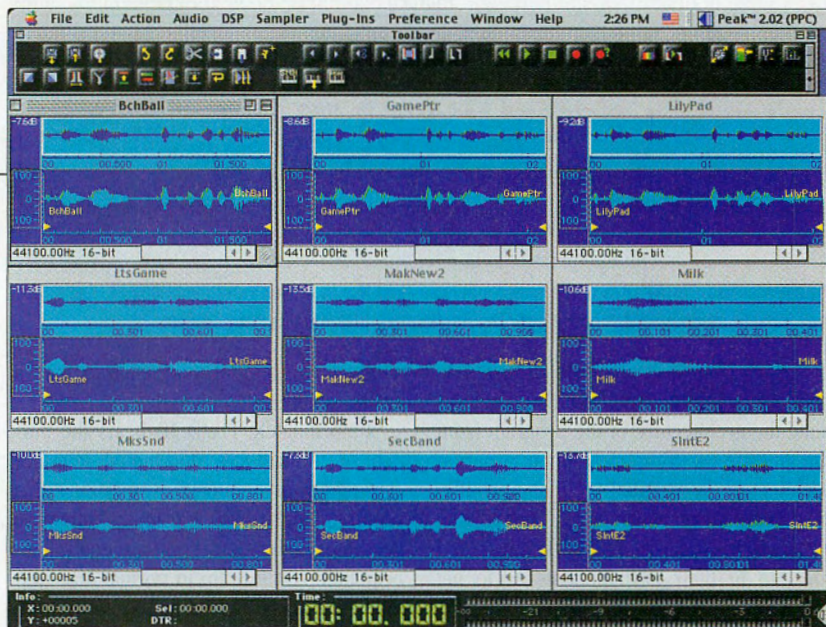
REQUIREMENTS: PowerPC, System 7.1 or later, 32MB of RAM, 5MB of free hard disk space (DAE support requires an additional 10MB), CD-ROM drive, QuickTime 3.0 or later, Apple Sound Manager 3.3 or later, 640 by 480 display resolution, additional audio hardware recommended for higher-bit recording and playback



FIND A
DEMO of
Peak 2.02 on
The Disc.

The digital audio world waited an eternity, it seemed, for BIAS's Peak 2. Rumor had it that BIAS was slowly incorporating user feedback and wish lists to make a great product. But some digital audio creators wondered if BIAS would pull a Microsoft move, turning an elegant, user-friendly audio-editing application into a gargantuan RAM-gobbling hog. Miraculously, the newest version of Peak is exceptionally intuitive and easy to use, while adding more useful features than any other audio-editing program we've seen. Peak 2.02 was definitely worth the wait.

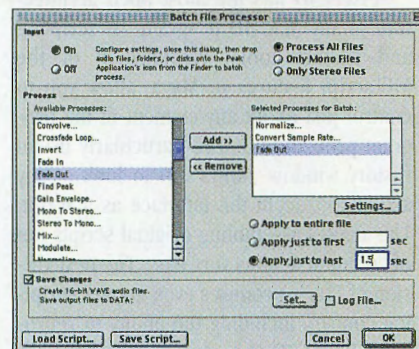
Customization is a key feature of the newly designed interface. The familiar waveform and editing conventions remain, but



USE THE TILE WINDOWS COMMAND to compare a screen full of files. This is an effective way to cut and paste between multiple windows. All the relevant commands work for the active window.

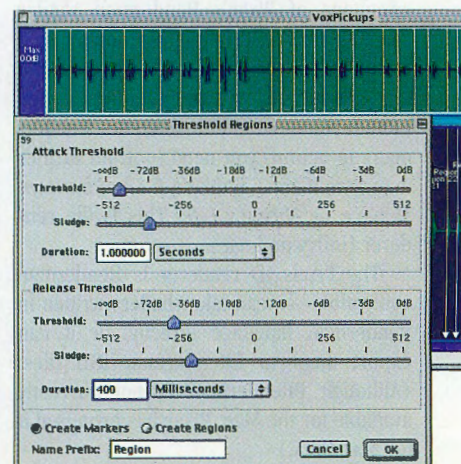
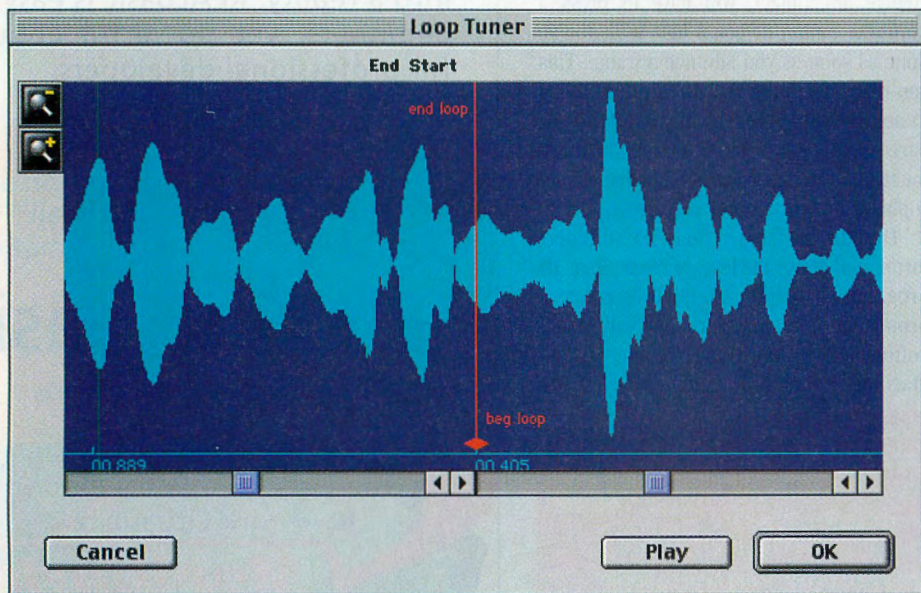
you can make Peak 2.02 superresponsive to your unique needs. Decide what options you will use most, then configure the toolbar to contain icons for those features or plug-ins. While you're at it, set a keyboard shortcut as well. You can resize the toolbar, drag it around the screen, and position it horizontally or vertically. If you prefer a different color scheme, you can choose a new waveform, background, and highlight hues.

Navigation is perhaps the most crucial feature in determining how smooth an edit-



SET UP THE PROCESSES YOU NEED in the Batch File Processor, then drag and drop a whole folder onto Peak 2.02's icon. All the relevant audio files in the folder change according to your instructions.

CREATE PERFECT LOOPS VISUALLY using the Loop Tuner.



THE THRESHOLD COMMAND is great for splitting up musical audio files into separate regions. It's harder to define precise voice regions.

With the top down, the only sound you'll hear
is the whining of the designers who came in second.



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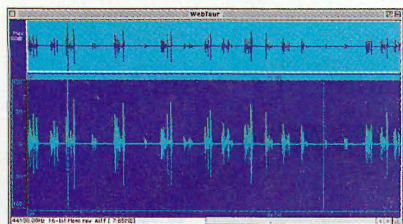


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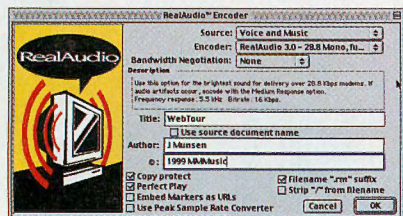


Sync Your Audio to the Web

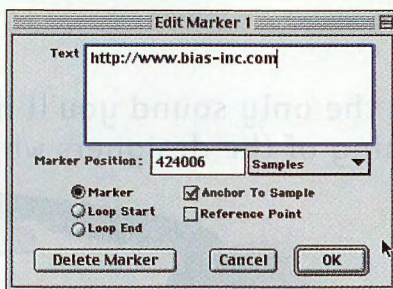
Not only can Peak 2.02 save sound files in MP3 and Shockwave formats for the Web—it can also create RealAudio files that synchronize Web pages with audio. Stream a great music track to accompany visually stunning Web pages, or implement a narrative track to describe your service or company. Support your Web page's text and imagery with audio.



1 Open a music or narration file you want to synchronize with your Web pages. Make sure you like its levels and timing.



3 Choose Save As from the File menu and select RealAudio in the dialog box. The Encoder window shows options for naming, titling, and specifying the encoding. Check the Embed Markers As URLs box.

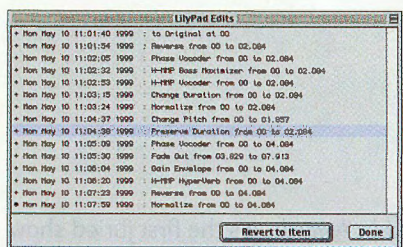


2 Click the part of the file where you want browsers to start locating a Web page, and press Command-M. Type the complete URL for the first Web page. Repeat.



4 You can download RealPlayer from RealNetworks (<http://www.real.com>) to hear how your finished file will sound, then add the file to your Web page. The whole Web audience can now sync to your audio.

ing program is. It's a snap with Peak 2.02's overview display at the top of the sound file, convenient zooming commands, and handy markers. The latter identify important points in your file, and are easy to place and use.



UNLIMITED UNDO AND REDO CAPABILITIES are an exciting development in sound design. The Edits window uses a playlist-style editing event list, where you can go back to any step since your last save.



YOU CAN SET THE TOOLBAR SHAPE, LOCATION, AND ICONS however they function best with your way of working. Move the cursor over any icon and look at the Info Bar to see its name.

The Ultimate in Sampler Savvy Software

If you own a sampler, you know what a hassle it is to edit and process your sounds. Most samplers have small backlit displays. These are functional, but not great for seeing the edits you make. Also, navigating your way around editing features can be daunting.

Peak 2.0 comes to the rescue by allowing you to import samples directly from your sampler. Then you can use all of Peak's terrific features and plug-ins to tweak and loop your sounds and zap them back to your sampler. Few samplers have Peak 2.0's advanced processing capabilities, so this two-way file communication is awesome. It's like getting a supercharged upgrade for your sampler.

Samplers supported using a MIDI interface and OMS

Roland S-670
Ensoniq EPS16+
ASR-10 and ASR-X
Akai S1000, S2000, S3000

SMDI (SCSI Musical Data Interchange) uses a SCSI cable to send information between devices at a much faster rate than MIDI.

Samplers supported using SMDI

Emu E-IV, ESI-32, ESI4000, E-64
Ensoniq ASR-X
Kurzweil K2000, K2500
Peavey SP/SX
Yamaha A3000

Regions are user-defined portions of the audio file that you can save as separate AIFF or Sound Designer II files. You can add a number of regions from different sound files to a playlist, where you set the play order, relative volumes, fades, and spaces between files. In fact, using Peak 2.02's unique Playlist feature, you can burn your own audio CD using the bundled version of Adaptec's Toast software.

Peak 2.02 pulls ahead of the audio-editing pack with its serious looping support. Set up and adjust loops during playback with the tempo-based Loop Surfer. It's uncommonly easy, and your ears let you know when you've got the groove. For precise visual loop creation, use the Loop Tuner to line up the start and end points.

Peak 2.02 is the most versatile audio editor around. It supports all the familiar

audio formats, as well as QuickTime, MP3, Shockwave, and RealAudio. Sound designers will applaud the program's support for 8-, 16-, 24- and 32-bit resolution, as well as for DAE, TDM, and AudioSuite. Digital audio designers will adore the unlimited undo and redo capabilities, too. The tiled windows, playlist, and region functions make Peak 2.02 invaluable for postproduction and narration editing.

Peak 2.02 is an exceptional tool for every audio need, and it comes in an amazingly well-designed package. For basic audio editing, Peak LE, the light version, is an astounding value at \$99.—*Judy Munsen*

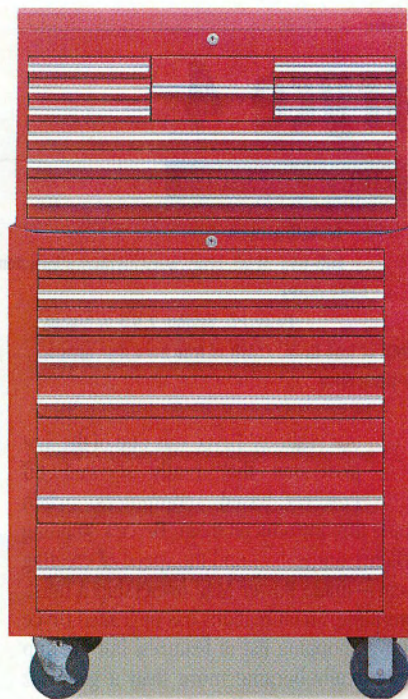
GOOD NEWS: Awesome professional yet easy-to-use audio editor.

Customizable interface. Supports up to 32-bit audio resolution. Supports MP3, RealAudio, Shockwave. Unlimited undos and redos. CD-burning capability. Batch processing. DAE, TDM, and AudioSuite support. Good paper manual. **BAD NEWS:** No VST or ASIO support yet. Threshold command doesn't work for creating voice-over or narrative regions.



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Bryce 4

DESIGN & GRAPHICS

COMPANY: MetaCreations

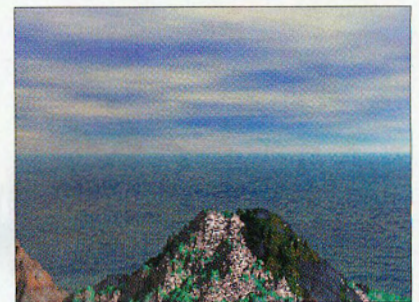
CONTACT: 805-566-6200, <http://www.metacreations.com>

PRICE: \$249 (SRP)

REQUIREMENTS: PowerPC, System 7.5.5 or higher, 32MB of free RAM, 75MB of free hard disk space, CD-ROM drive

MetaCreations' Bryce was one of the first programs that really showed off PowerPC-based computers when Apple first introduced them. Bryce's stunning 3D environments—and the speed of creating them—made Power Mac ownership a must. Over time, MetaCreations has upgraded Bryce with a shopping list of features, but the app never really became more than a gee-whiz tool in a very small niche. With Bryce 4,

CONSTRUCTING 3D WORLDS IS EASY IN BRYCE 4—new and existing tools make creating terrain, sky, and water effects effortless.



BRYCE 4'S STRENGTH LIES IN CREATING WORLDS (which make excellent backdrops), not objects. You'll have to create objects in another 3D app and import them into Bryce.

Bryce 4 still lacks adequate tools for creating 3D-modeled objects such as an apple or a car. The controls provide enough finesse to manage simple shapes like cones, squares, and other predetermined figures, but if a 3D scene requires a character model or any other complex object, you should build it in a different application and import it into your scene. Depending on your point of view, MetaCreations' nonstandard, hard-to-learn interface either hampers Bryce 4 or puts it on the cutting edge of user interface development.

Despite its new features, Bryce 4 just barely qualifies as a full version upgrade. The Sky Lab and new preview functions are useful, but an incremental upgrade could easily have included them. Still, Bryce 4 is the best tool available for creating 3D terrain and environments. Users with a specific need for making 3D worlds will find Bryce 4 worth the price of admission, but for most other users it's essentially a cool toy that shows off your Power Mac. —Rick Sanchez



THE SKY LAB IS ONE OF THE MOST USEFUL NEW ADDITIONS, providing control over cloud cover, sky, and atmospheric effects.

MetaCreations tries to make the program useful to a wider variety of 3D artists.

Bryce's strength is still in 3D terrain generation. There simply is no other Mac app that can create Earth-like or alien worlds as quickly and easily as Bryce. Controls such as the Materials, Sky & Fog, and Objects palettes give the artist instant access to a huge variety of 3D surfaces for creating a world.

Bryce's Materials Lab and new Sky Lab can create almost any surface or atmospheric effect. Users of previous Bryce versions should find the Materials Lab familiar. It provides precise control over such values as metallicity, specularly, and transparency, as well as features that allow you to apply picture maps in new ways—for example, tiling and mirroring.

Bryce 4's Sky Lab is perhaps the biggest new feature. Like the Materials Lab, it provides comprehensive control over atmospheric effects. Sky Lab consists of three panels: Sun & Moon, Cloud Cover, and Atmosphere. In Sun & Moon, you set star fields, the sun and moon size, comets, and the moon phase. In Cloud Cover, you set cloud strati and cumuli independently and create skies as familiar as Los Angeles haze or as alien as sunset on Io. In all the panels, a near-real-time render preview provides feedback on your changes.

Bryce 4 offers additional import and export formats, including U.S. Geological Survey maps, DEM files, and SDTS files. The new Export Lab is a real-time multiresolution tool for converting terrains into mesh objects you can export in most major 3D file formats.

This version improves previewing and rendering as well. Lights have a new falloff mode for throw control, and you can enhance render quality through 48-bit dithering and gamma correction. Although overall rendering speed is still slow compared to that of other 3D programs, the preview window seems snappier than in Bryce 3D. A new animation preview also makes it easier to adjust models and motion paths before doing a full render and exporting a movie.

While it offers several new features,



THE MATERIALS LAB INCLUDES NEW WAYS TO MAP pictures to objects such as tiles and mirrors, and still offers excellent tools for creating new surfaces to use in 3D worlds.

GOOD NEWS: Lots of small improvements to the entire package. Good manual. **BAD NEWS:** Still a niche product for very specific uses.



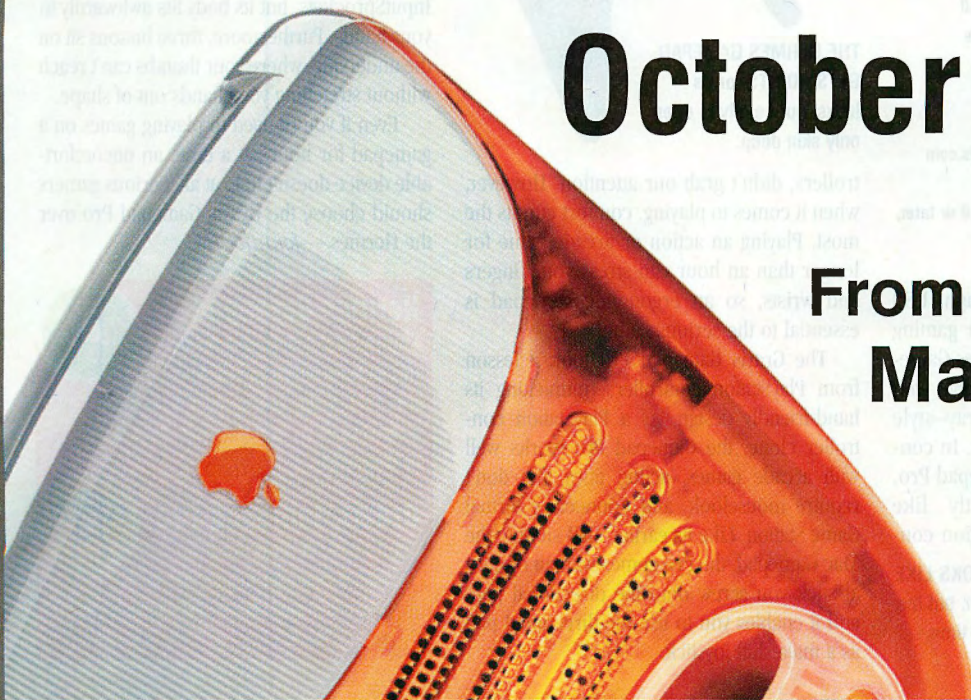
The 100%Independent Guide to the iMac

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October 5, 1999

From the editors of
MacAddict and
MacFormat
magazines.





USB Game Gear

HARDWARE

Cyborg 3D Stick

COMPANY: Saitek Industries

CONTACT: 310-212-5412, <http://www.saitekusa.com>

PRICE: \$74.95 (SRP)

REQUIREMENTS: USB-equipped Power Mac, Mac OS 8.0 or later, InputSprockets 1.4 or later

Apple's adoption of USB for the iMac, blue-and-white G3, and new PowerBook G3 means Mac gamers can finally get their hands on cool PC gear, such as Saitek's Cyborg 3D Stick. This totally original-looking joystick wears its Cyborg name well; its design resembles something straight from a Borg cube. The Cyborg *looks* cool, but is it?

One feature makes the Cyborg 3D Stick's design truly unique: customization. With the included hex key, you can adjust the top assembly and hand rest to fit your hand. Moreover, lefties can switch the hand rest and throttle assembly for left-handed playing, and the trigger's angle and hat switch are also

THE CYBORG 3D STICK ASSIMILATES YOU into a totally comfortable game-playing experience.



adjustable. Customizing the Cyborg to fit your hand like a glove and to accommodate your playing style eliminates slips or discomfort, which can ruin timing in games. In addition, the Cyborg fits most women and kids better, since traditional joysticks and flight sticks are generally too big for their hands. And does customization improve your playing? You bet.

Beyond its innovative ergonomic design, the Cyborg's overall movement and feel are right on target. The eight-way hat switch is pointy enough so your thumb doesn't slip; the trigger buttons are springy and responsive; and the throttle moves with consistent, smooth motion. If the calibration doesn't feel just right when you fire up the Cyborg, you

can calibrate it with InputSproket 1.4. Last but not least, the Cyborg's matte-finish coating resists sweat, which you don't want interfering in your play.

Our one beef is Saitek's sparse documentation. Otherwise, the Cyborg is a true plug-and-play device, and with its awesome customization and futuristic looks, there's just nothing else like it for the Mac. —Jennifer Ho

GOOD NEWS: Customization for different hands, even lefties. Cool, ergonomic design. Smooth throttle movement. Responsive buttons and trigger. **BAD NEWS:** No ADB version. Sparse documentation.



Hermes Gamepad

COMPANY: Ariston Technologies

CONTACT: 800-326-5294 or 714-846-7676,

<http://www.ariston.com>

PRICE: \$44.99 (SRP)

REQUIREMENTS: USB interface, Mac OS 8.0 or later, games that support InputSprockets

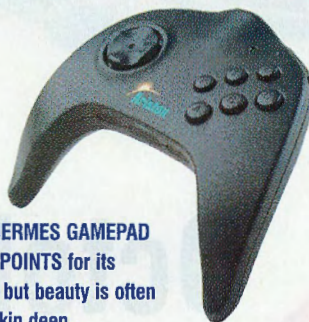
Gravis Gamepad Pro

COMPANY: Gravis

CONTACT: 650-572-2700, <http://www.gravis.com>

PRICE: \$39.95 (SRP)

REQUIREMENTS: USB interface, Mac OS 8.0 or later, games that support InputSprockets



THE HERMES GAMEPAD GETS POINTS for its looks, but beauty is often only skin deep.

trollers, didn't grab our attention. However, when it comes to playing, comfort counts the most. Playing an action or arcade game for longer than an hour can stress your fingers and wrists, so an ergonomic gamepad is essential to the serious gamer.

The Gravis Gamepad Pro took a lesson from PlayStation controllers, mimicking its hand-friendly design. As a PlayStation controller clone, the Gamepad Pro works well with arcade games, action titles that don't require mouselook, and Connectix's Virtual Game Station. Like its earlier ADB sibling, the Mac Gamepad, the Pro comes with an optional stick you screw onto the directional pad, and it enables you to use the directional pad as a makeshift joystick.

The Hermes Gamepad, on the other hand, looks cool with its black matte finish and sleek design. Unfortunately, it fails to unite design and comfort for long-lasting gameplay. Sure, it works with games that support InputSprockets, but its body fits awkwardly in your hands. Furthermore, three buttons sit on the underside, where your thumbs can't reach without stretching your hands out of shape.

Even if you're used to playing games on a gamepad for hours at a time, an uncomfortable device doesn't help at all. Serious gamers should choose the Gravis Gamepad Pro over the Hermes. —Jennifer Ho

Hermes Gamepad

GOOD NEWS: Cool-looking design. Has all the standard gamepad buttons. **BAD NEWS:** Unergonomic fit. Strangely placed buttons on front underside. No stick for directional pad.



Gravis Gamepad Pro

GOOD NEWS: Behaves like a PlayStation controller. Comfortable fit. Includes an optional stick for the directional pad. **BAD NEWS:** None.



Looking for the right USB gamepad for your gaming needs? The Hermes Gamepad first caught our eye with its unique manta ray-style body five months ago. In contrast, the Gravis Gamepad Pro, which looks exactly like general-issue PlayStation con-

THE GRAVIS GAMEPAD PRO LOOKS LIKE a standard PlayStation controller, but the design has withstood the test of time.



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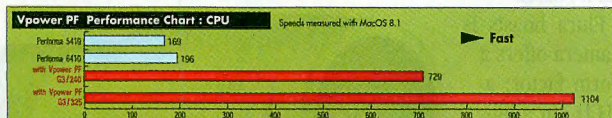
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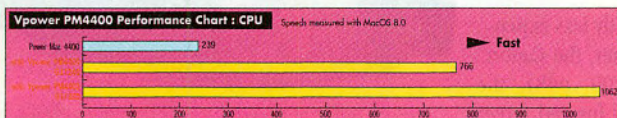
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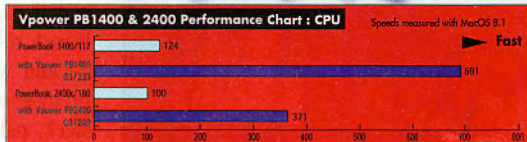
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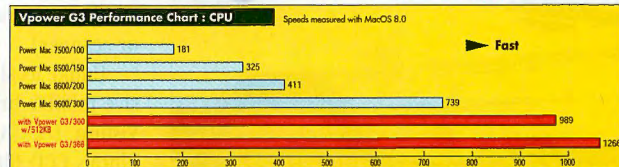


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Vpower PB 1400 G3/233	Power Book 1400	G3/233MHz	512KB/117MHz	\$ 339
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Canon Elura

HARDWARE

COMPANY: Canon

CONTACT: 800-828-4040, <http://www.canondv.com>

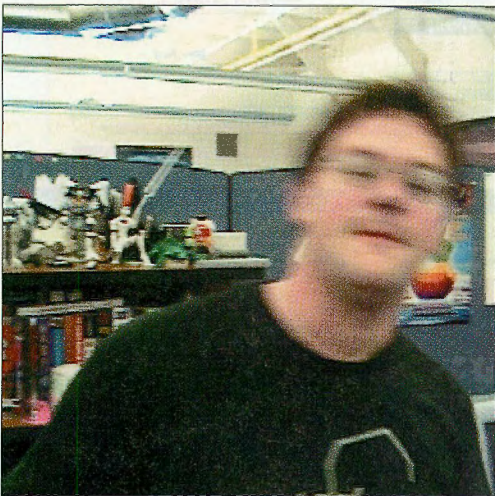
PRICE: \$1,799 (SRP)

REQUIREMENTS: FireWire-equipped Power Mac

Canon's newest miniDV camcorder aims to take charge of the consumer digital video middle ground. The Elura's features and price make it the modest-to-serious hobbyist's camera—too expensive for the average wedding-and-birthday filmmaker, but



FILM A CAFFEINATED MARK SIMMONS jumping around, and the Elura's Normal mode produces ugly interleaved lines when viewed on a Mac.



BUT CATCH MARK MIDMOTION using the Elura's Progressive Scan mode, and you'll see only natural blurring.



relatively flimsy for a serious DV connoisseur. But the Elura is tiny, buzzes with spiffy features, cranks out sharp footage, and, like most Canon camcorders, is rock-solid at what it boasts.

And what the Elura boasts is pretty good. The camera offers a sleek, palm-size form factor; a 2.5-inch rotating LCD (in addition to a color viewfinder), two channels of 16-bit or 48KHz audio (or four channels of 12-bit or 32KHz audio), a FireWire port for connecting to your Mac, manual focus and exposure options, image stabilization, digital effects, and a 12X optical zoom (up to 48X digital). But the feature that really makes this camera worth considering is its RGB-filtering, Progressive Scan-enabled CCD, the part of the camera that digitizes an image into a video camera (or a still camera or scanner).

Unlike its slightly less expensive miniDV brother, the Canon Vistula DV (Apr/99, p48), the Elura's CCD filters for red, green, and blue instead of cyan, magenta, and yellow. The advantage is that the Elura's color representation is more accurate, coming closer in color accuracy to the results of high-end cameras such as Canon's top miniDV camera, the XL-1 (which has three CCDs—one each for red, blue, and green). The CCD also offers a special Progressive Scan mode, which shoots 30 flawless frames per second. When you watch video shot in Progressive Scan mode as a movie, it appears rough and jumpy, but recording this way allows you to pull out a single



STRAP AN ELURA TO YOUR PALM and wow your friends with clear digital video...until the battery runs out.

frame for use as a still photo. This essentially turns the Elura into a darn fast digital still camera. (The Elura also has a higher-quality still image mode, which records a single image onto several seconds of tape.) For more on the Progressive Scan CCD, see "Progressive Thinking."

One option that many miniDV cameras have long lacked—and that the Elura sports—is an analog line in. Both the

reviews

Progressive Thinking

One of the Canon Elura's biggest bells (or whistles) is its Progressive Scan CCD. Most video CCDs take in every other horizontal scan line off footage 60 times per second to combine them into one 30-fps signal. A Progressive Scan CCD takes in 60 full fps, but for playback must throw away some of this information. In the case of the Elura, you can opt to have the camera throw away every other scan line per frame, yielding a traditional interleaved signal; or you can have the camera throw away every other frame and keep 30 complete fps. If you are showing your video on a TV, you'll want to opt for an interleaved signal, as you will never notice the interleaving, and keeping the full frames makes for a jumpy image. But if you want to look at individual frames on a computer, or pull one out to use as a still image, you should record in Progressive Scan mode—otherwise you might see banding within frames.

composite video and the S-Video jacks on the Elura are out *and* in jacks, which lets you convert old video or TV recordings to DV. Because DV doesn't lose quality during the making of second-generation copies, and because miniDV tapes are so durable, this is a great way to store and keep working with your old video archives. In addition, once you convert your video recordings to DV, you can capture them through your Mac's FireWire port, saving you the expense of an analog capture system.

Our biggest complaint about the Elura is its short battery life. The camera only comes with one small LiIon battery, which goes dry after 15 minutes of playing with the camera. A test of recording time (filming only, not using effects or VCR functions) killed the battery in approximately 40 minutes. You can, of course, purchase additional longer-lasting batteries from Canon, but these diminish the Elura's slim, light, small-as-your-palm form factor. The other choice is to buy a second (or even third or fourth) battery as small as the first, and continually swap them in and out. Either way, you'll have to do something. We can't imagine that a self-respecting videographer would keep shooting times so short or stay tethered to an electrical outlet.

A second complaint, albeit a smaller one, is that the switch to turn the camera on and off or to change modes is perilously close to the zoom dial. To make matters worse, both of the controls feel similar to the touch if you're not paying close attention. On more than one occasion we found ourselves accidentally switching the camera off instead of zooming in on a subject.

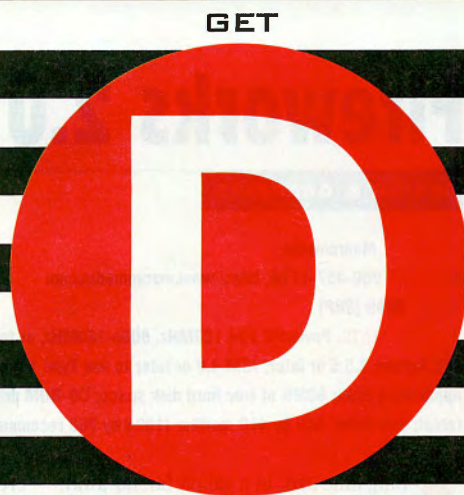
Aside from its battery woes and control caveat, the Elura is an outstanding camera for its price point. The home video user who's willing to spend a little extra for the Elura's imaging and gadgetry savvy will appreciate its flexibility and rich feature set. The picture quality and overall size are outstanding for a serious hobbyist looking for a lightweight, single-CCD backup DV camera. If you just want an entry-level DV camera, or if you're looking for one you can work with on a more professional level, the Elura is probably not for you. But if you're someone who falls between these two categories, definitely take a look at this newest addition to the Canon DV family.

—Robert Cappas

GOOD NEWS: Sharp picture. Great color. Small, inconspicuous size.

Cool Progressive Scan and Photo modes for getting digital stills.

BAD NEWS: Short battery life. It's easy to confuse tightly spaced components accidentally. Pricey for a single-CCD miniDV camera.



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Fireworks 2.0

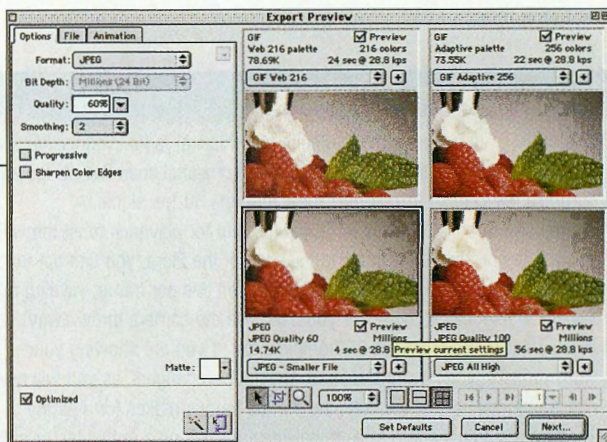
DESIGN & GRAPHICS

COMPANY: Macromedia

CONTACT: 800-457-1774, <http://www.macromedia.com>

PRICE: \$299 (SRP)

REQUIREMENTS: PowerPC 604 120MHz, 603e 180MHz, or faster (63 recommended); System 7.5.5 or later; ATM 4.0 or later to use Type 1 fonts; 24MB of available application RAM; 60MB of free hard disk space; CD-ROM drive; mouse or graphics tablet; 256-color, 640 by 480 monitor (1024 by 768 recommended)



ONE OF FIREWORKS 2.0'S BEST FEATURES is the multipane file export window—just preview, select, and save files.

A long time ago, in a galaxy far, far away, Adobe ImageReady 1.0 and Macromedia Fireworks 1.0 faced off in the Web graphics wars. Fireworks edged out ImageReady and showed much promise, but a confusing, static interface hid its true power. With Fireworks 2.0, however, Macromedia has created a powerful, easy-to-use Web graphics application. Movable palettes, redefined processes, and a rich feature set make version 2.0 a compelling upgrade for Web pros.

Fireworks 2.0 uses Portable Networks Graphics (PNG) as its native file format, and can import and export GIF, JPEG, TIFF, PICT, BMP, PSD, and other common formats. In addition, those who have invested heavily in Photoshop plug-ins will be delighted to know that Fireworks can use many of them. In fact, Photoshop and ImageReady fans will feel right at home in version 2.0's palette-based interface.

Fireworks 2.0 shines in many ways. First, it supports Bézier curves (or paths), vector-based objects (such as rectangles and ovals), and raster images to provide a powerful and flexible system for graphic composition. Reeditability allows you to realize both your

creativity and productivity without sacrificing ease of use. Furthermore, Web veterans, who know what a chore creating JavaScript-based effects can be, will be relieved to know that Fireworks eases the burden tremendously. Simply work up a graphic, select the appropriate regions, type some information, and export your graphics. Fireworks quickly generates the necessary images and HTML files. It couldn't be easier.

Fireworks 2.0's JavaScript capabilities are a valuable asset. We also examined some of its subtler features. Aside from exploiting the standard set of bevels, gradients, and shapes, it lets you combine textures ranging from vein to scratch, and patterns from bricks to tweed, with various colors and shapes, creating a seemingly endless variety of effects. Create unique backgrounds, interesting text, and unique objects with a few clicks. Now *that's* good software.

One feature many users may overlook—to their detriment—is batch processing. Version 2.0 adds the ability to save batch scripts. Batch-process actions range from color swapping to text modification to file saving. Other features include

fast tweening, essential for creating cool animated GIFs, and the ability to preview your animated GIF in the editing window; you must still visit the Export dialog box to set the frame delay and other items. Thankfully, Fireworks' Export window, with its multipaned setup and list of presets (such as GIF Web 216 and JPEG High Quality), remains virtually unchanged.

Version 1.0 suffered from some interface problems, but version 2.0 offers many reasons to upgrade. Macromedia has implemented better palettes and a more intuitive JavaScript system. These make Fireworks 2.0 the new ruler of the Web graphics wars.—*Erik J. Barzeski*

GOOD NEWS: Much improved interface. Faster, easier manipulation of mouse-overs and other JavaScript actions. Great tutorial and manual. Export dialog box allows up to four real-time previews. Supports many Photoshop plug-ins. Seamless editing of vector and pixel images. Unlimited undo. **BAD NEWS:** Sometimes it's difficult to select the right item.

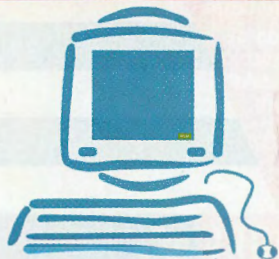


FIND A TRIAL OF Fireworks 2.0 on The Disc.

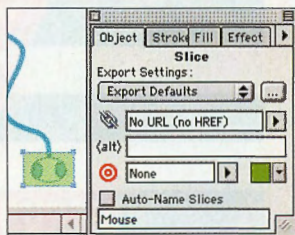


Quit Mousing Around

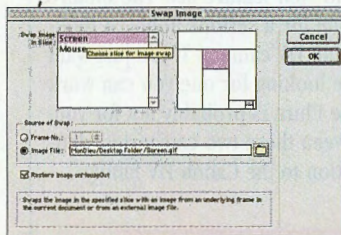
It's easy to create interactive effects in Fireworks 2.0.



1 Create this nifty graphic. Leave room on the iMac's screen for an animated GIF that appears when the pointer moves over the mouse.



2 Create slices for the animated GIF and the mouse. Name them in the Object palette; we used "Mouse" and "Screen."



3 With the Mouse slice selected, add a Swap Image behavior via the Behaviors palette. Swap the Screen image for your animated GIF.



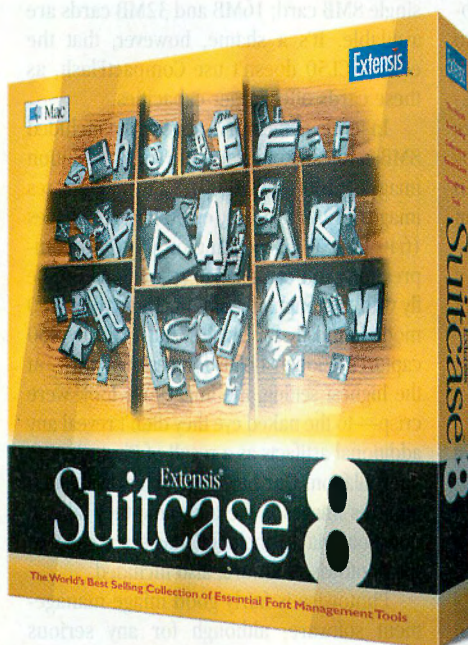
4 Export the HTML and all of the appropriate graphics, then preview your work in a browser—instant mouse-overs!

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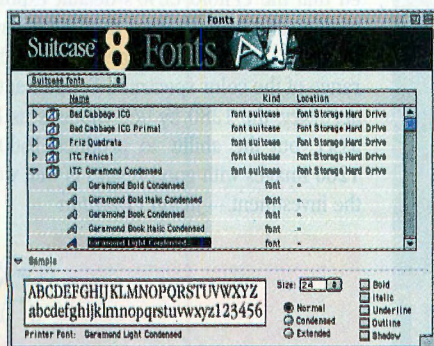


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ePhoto CL50

HARDWARE

COMPANY: Agfa**CONTACT:** 201-440-2500, <http://www.agfahome.com>**PRICE:** \$799 (SRP), \$100 mail-in rebate starting May 22**REQUIREMENTS:** PowerPC, System 7.5.3 or later, 16MB of RAM, 50MB of free hard disk space, 2X CD-ROM drive

Are you already bored with 1-megapixel digital cameras? Agfa wants you to move up to 2 megapixels with its sub-\$1,000 ePhoto CL50. To clarify, the ePhoto CL50 is really a 1.3-megapixel camera with an interpolation process that increases resolution to 1.9 megapixels. In terms of image size, that means you get photos at 1280 by 960 with no trickery, but the built-in PhotoGenie interpolation technology can produce images at a robust 1600 by 1200.

The ePhoto CL50 looks very much like a standard compact 35mm camera, except

THE PLAY OF SHADOW AND LIGHT

on different surfaces such as wood, stone, and grass poses no problem for the ePhoto.



for the 2-inch LCD and the side port for SmartMedia memory cards. It includes a single 8MB card; 16MB and 32MB cards are available. It's a shame, however, that the ePhoto CL50 doesn't use CompactFlash, as these cards offer larger capacities.

In terms of memory capacity, the included 8MB card can hold at least 12 high-resolution images (1600 by 1200), 24 medium-res images (1280 by 960), or 96 low-res images (640 by 480), depending on the JPEG compression. You can change resolutions on the fly with the touch of a button. The 640 by 480 mode is mostly for giggles, but 1280 by 960 captures enough detail for serious work. At the highest setting, the images we took were crisp—to the naked eye they didn't reveal any additional artifacts as a result of PhotoGenie's interpolation. Our biggest problem with such high-res images is the long time they take to download via the included Mac serial cable to the Photowise software, also included.

Photowise is fairly good image-management software, although for any serious work you'll want to transfer the pictures to

ACCURATE COLOR IS IMPORTANT—you want to see the blue sky, the red Jeep, and the greenery reproduced truly in your image.



THE EPHOTO CL50 IS A SLEEK LITTLE CAMERA with the ability to produce large images—almost 2 megapixels.

a beefier program such as Photoshop. One nice feature is Photowise's ability to stitch together a sequence of images to form a panorama. This takes some planning and either a tripod or a very steady hand, and the overlap between pictures must be around 50 percent, but the result is striking.

The ePhoto CL50's LCD offers standard viewfinder features and allows you to preview and delete pictures. You can turn the LCD off with the flick of a switch to prolong battery life. That's a nice option, but on our unit the optical viewfinder was out of focus, especially on zoomed shots, making it hard to gauge the shot accurately.

To save battery power without losing the LCD, you can raise a nifty little door that allows sunlight (or any other strong light) to power the screen's backlight. This also generally produces a better image on bright days when sunlight can wash out the LCD. Unfortunately, neither the battery backlight nor the natural illumination are much help on slightly overcast days.

Some amateur color analysis with Photoshop and a photo color chart indicated that the ePhoto CL50's default exposure settings and its flash were dead-on accurate in grays, and just a bit heavy in the blue range of the color spectrum. For guaranteed accuracy, the 1280 by 960 mode is its best asset, but the ability to produce 1600 by 1200 images with good results is well worth the investment.—*Jason Compton*

GOOD NEWS: Crisp, accurate images. Nice form factor. Good LCD. Solid in-camera picture management. Good macro mode.

BAD NEWS: Lousy optical viewfinder. No lens cap. Doesn't use CompactFlash cards. No interface for external flash.



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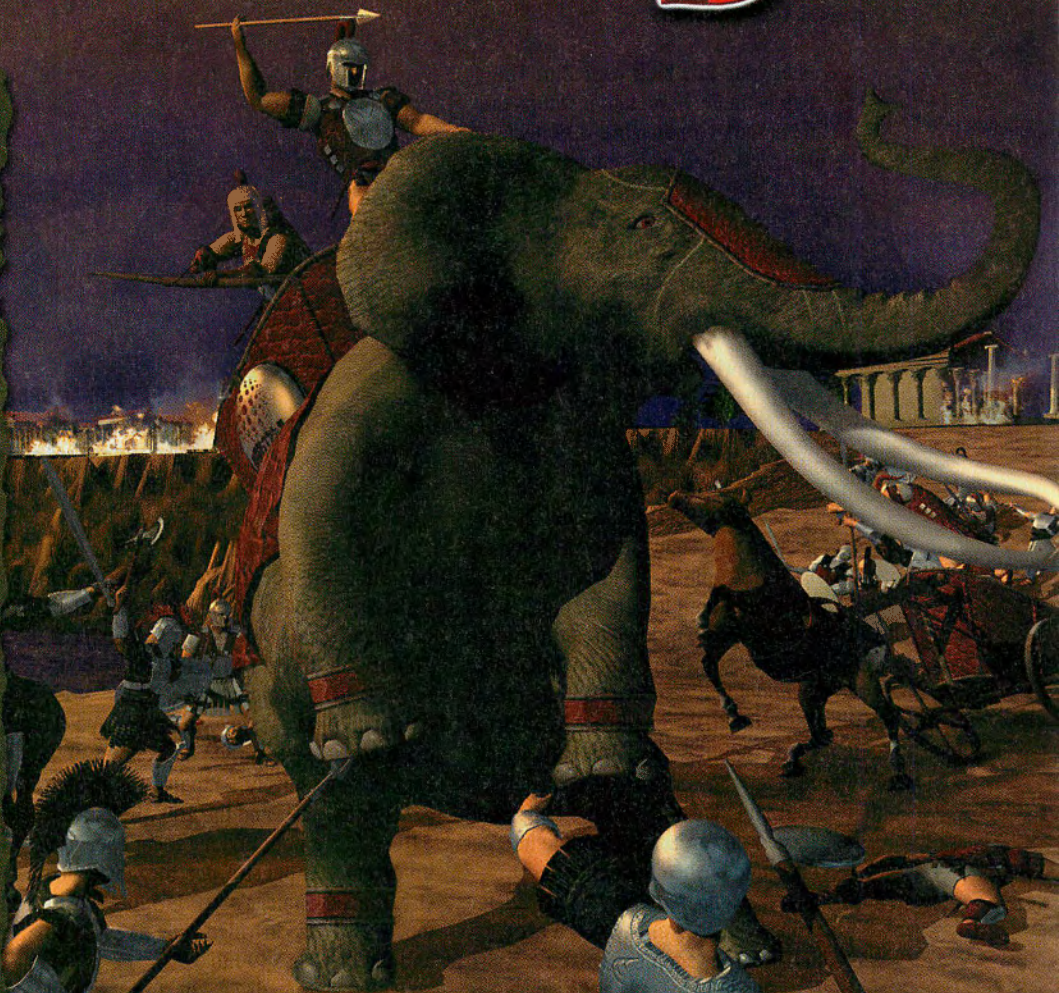
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reviews

The Orb Internal Drive

HARDWARE

COMPANY: Castlewood Systems**CONTACT:** 925-461-5500, <http://www.castlewood.com>**PRICE:** \$199.95 (SRP), \$29.95 per storage disk**REQUIREMENTS:** PowerPC with EIDE (ATAPI) internal bus (USB, internal SCSI, and FireWire versions planned), System 7.1 or later

Trash your Jaz. Kick your Zip. The Orb is finally here, and it whups the other guy's removable disk tech in the only ways that really matter: performance, size, and price.

It's been a long wait. Castlewood—lead by Syed Iftikar, founder of the late lamented SyQuest—announced the Orb way back in 1997. The first units are showing up just now, after having earned a prominent name in the Mac Vaporware Hall of Fame. But all is forgiven, because the Orb is a solid product that we predict will become the standard magnetic media in the new millennium.

We tested an early internal EIDE (ATAPI) model built for the PC market (all we received was Windows documentation and Windows software). But we found that the PC model will also work in any recent Mac with an EIDE or Ultra ATA internal bus, which includes all of Apple's G3 desktop models.

In our blue-and-white G3, we popped off the data and power cables from the internal DVD drive and pushed them into the Orb—no jumper setting required. To install the Orb properly in a drive bay, you'll need a 5 1/4-inch drive bay adapter. (Or you can also just let it hang nonchalantly by its cables, the way we did.) Using Apple Drive Setup, we partitioned the Orb disk into two 1GB partitions, which took less than a minute—incredible in itself. We couldn't format the disk with a 2GB partition using Drive Setup, but you'll be able to with Mac-native Orb formatting tools.

The package includes one Orb disk. Inexplicably, the disk lacks a simple write-protect tab; you can only write-protect via software. It does come with a really sturdy plastic case that won't snap into sharp shards when you step on it.



THE INTERNAL ORB DRIVE DOESN'T TURN HEADS, but it's a fast and inexpensive storage option for Power Mac users.



THE EXTERNAL ORB DRIVE, on the other hand, is mighty sleek and stylish.



Here's why we think the Orb is a great buy. First, size does matter. At 2.2GB, Orb disks are 10 percent bigger than 2GB Jaz disks and can hold the equivalent of 22 100MB Zip disks, 18 Imation SuperDisks, or 3 CD-ROM games.

Second, the system is inexpensive. The drive costs \$199 and the disks are \$29.95 each. Comparatively, a Zip drive is \$149 to \$199 (external), and the 100MB disks are \$10 to \$12 a pop, making them over nine times more expensive per megabyte than Orb media. Iomega's Jaz is more costly, too. A 2GB Jaz cartridge runs \$129 or so, and the drive is \$399 to \$599.

Third, the drive performs well. Castlewood claims a sustained data transfer rate of 12.2 MBps, compared to 1.4 MBps for a Zip drive and 1.3 MBps for a DVD drive. The Orb drive is the first to use magnetoresistive (MR) head technology, supposedly faster and more reliable than the older inductive head technology in Zip and Jaz drives. We couldn't check the reliability claim, but the speed is definitely for real. The Orb played large, uncompressed QuickTime movies at about the same frame rate as the blue-and-white Mac's internal Quantum hard drive.

It's a good bet that Apple will start offering the Orb as a build-to-order option, but Castlewood has also mapped out a fairly ambitious schedule of product releases. It plans to make internal SCSI and external USB and FireWire units available by the time you read this. Castlewood has also been aggressive about securing OEM deals on the PC side, which means Orb prices will drop and the product should be around for a while.

However, other media could potentially eclipse the Orb—tiny FireWire drives, mini disc DVD-RAM, or cheap flash memory, who knows what. Committing to a removable storage system has always been a bit of a gamble. But the Orb offers the best combination of features we've seen, and it's here right now. If you need fast, cheap, practically endless storage, round up an Orb.—Steven Anzovin

GOOD NEWS: Best price-per-megabyte ratio of any removable magnetic media. Reasonably fast. Solid enclosure. Sturdy media.

BAD NEWS: No write-protect tab on the disk. Service bureaus don't have 'em—yet.



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Imperialism II

FUN & GAMES

COMPANY: Strategic Simulations

CONTACT: 800/716-8503, <http://www.imperialism2.com>

PRICE: \$45 (SRP)

REQUIREMENTS: Power Mac 7500 or better, System 7.5.2 or later, 32MB of RAM, 110MB of free hard disk space, 4X CD-ROM drive, 14.4-Kbps modem or faster for multiplayer mode



FOR A DEMO OF
Imperialism II,
see The Disc.

Remember the original Imperialism? Then you know how satisfying it feels to build an empire into a dominant global power. Now Strategic Simulations brings us Napoleonic types the spiffy Imperialism II, an even more clever way to play history and knock other nations down for the count. The original title covered Europe in the 1700s and early 1800s. The sequel pushes you back to an earlier era, beginning around 1500 and ending near 1850—known as the Age of Exploration.

As a ruler, you bankrupt competing European nations into oblivion, seduce them with diplomacy, or blow them away with superior military strength. But you also cross the ocean to explore the Americas, dark lands that become visible only as your units move about the countryside. You'll have to deal with friendly and hostile natives, as well as explorers and spies from rival nations, but a whole new range of marketable commodities awaits: cotton, sugar, tobacco, precious gems. Success in the New World is vital to your domination of the Old.

The rest of the game is familiar to long-time strategy players. A mind-boggling array of management decisions swamps you: feeding and clothing your population, build-

ing up resources, financing military units, buying and selling goods, and maintaining an adequate fleet. At the same time, you'll stay busy on the diplomatic front, tendering treaties and creating alliances.

While Imperialism II doesn't offer anything new to the strategy genre, it's probably the most difficult strategy title available on the Mac. You have to monitor more than a dozen information panels as the game progresses. Those new to strategy will find this tough, and you may make several false starts before learning to juggle the challenges. However, a good tutorial takes some of the bite out of the learning curve.

A few welcome improvements make this sequel easier to play, including an option to transfer authority to the computer rather than making all the decisions yourself. This helps at the beginning while you're still learning, but don't let the artificial intelligence become a crutch. The other big improvement is the refined interface navigation. Instead of a sequence of mouse clicks to get to a specific information screen (as



AN OFFER SHEET SHOWS YOU ITEMS that competing countries tender for sale. You can accept or reject the offers.



EVEN THE SAVE SCREEN HAS GOOD LOOKS—just click an empty scroll at the bottom and type the name of the saved game.

the original required), you can now reach almost any screen with one or two clicks.

As for graphics and sound, the sound effects are quite simple—for example, sawing on wood, seagulls, and creaking timber when you activate ship icons; or slashing through brush when an explorer moves into unknown territory. The graphics feature a few small animations to keep the game moving (explorers peer through telescopes, merchants count their money).

If you get the game, be sure to use the update. This patches version 1 of the game, which displayed an "unknown error 25" from time to time. The patch also corrects certain commodity values—for example, the cost of fur, the cost of forts, coal production, and 12 other functions.

Imperialism II rewards you with addictive play. Taking a walk through history has never been more fun.—*John Lee*

A NEW WORLD MAP SHOWS your merchant on the verge of purchasing a gem mine. Only a declaration of war can wrest the property from you.



A TOWN CRIER REPORTS on significant diplomatic changes between turns.

GOOD NEWS: New worlds to conquer. Complex resource management. Challenging strategy and addictive gameplay. AI help. Better navigation system than the original.

BAD NEWS: Tame graphics and sound effects.



reviews

Carmageddon 2: Carpocalypse Now



reviews

FUN & GAMES

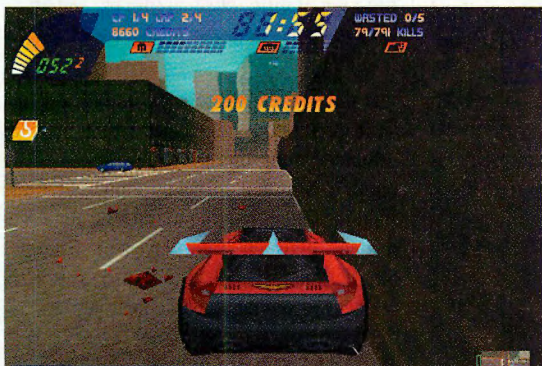
COMPANY: Interplay

CONTACT: 949-553-6678, <http://www.interplay.com>

PRICE: \$39.95 (SRP)

REQUIREMENTS: PowerPC 603e 180MHz or faster, System 7.6 or later (8.0 or later recommended), 32MB of RAM, 300MB of free hard disk space, 2X CD-ROM drive, hardware acceleration recommended

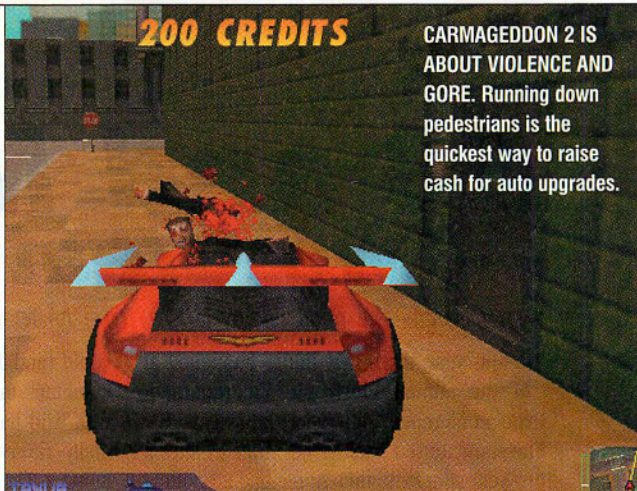
The original Carmageddon was a hit with both Mac and PC gamers. Interplay's sequel, Carmageddon 2: Carpocalypse Now, offers improved gameplay with extended playing time, more open arenas, and better car upgrades, but doesn't change the original drive-by hit-and-run formula.



WATCH THAT WALL! In your quest to go after pedestrians, you could crash into a barrier—and that will cost you repair cash.

Carmageddon 2 is about one thing: smashing stuff up. You may be smashing people, cars, dogs, or buildings, but it all boils down to smashing. To provide structure to the game, the developer requires the player to attempt to complete a race circuit before time runs out. But it doesn't really matter if you do this or not, because you can pick up lots of time extensions, and the best way to win is to smash other players' cars to pieces.

You pick up cash for repairs, upgrades, and new vehicles by reaching checkpoints on the circuit and by slaughtering pedestrians. A simple hit-and-run move gives you \$200, but do a little flashy driving such as a sideswipe, clipping pedestrians with a door, or pile-driving them into a building, and you can easily rack up \$700 or \$800 for the kill (sharpen your driving skills and you'll get more bucks per bang). The characters aren't even re-



CARMAGEDDON 2 IS ABOUT VIOLENCE AND GORE. Running down pedestrians is the quickest way to raise cash for auto upgrades.

motely realistic, but the few polygons that seem real dismember quite nicely.

Although politically incorrect and mindlessly violent, Carmageddon 2 is a fun game that people will enjoy playing—remember, it's just a game. Built-in acceleration hardware suffices, but for a better visual experience, a Rage 128 or 3dfx card is mandatory.—Rick Sanchez

GOOD NEWS: Supports Rage II, Rage Pro, Rage 128, and 3dfx chip sets.

Multiplayer mode supports up to eight players. There's no other game like it on the Mac. **BAD NEWS:** Poor control. Low frame rates. Multiplayer mode is limited to LANs.



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E3 and Macs —Two Great Tastes

Annual game fest distinctly more Mac friendly this year.



**CATCH AN
ONI sneak
peak on
The Disc.**

This year, three new things happened at the annual Electronic Entertainment Expo conference, otherwise known as E3: The show moved back to Los Angeles after a two-year stint in Atlanta; Apple had a booth at the show; and "Mac" was not just something that followed the word "Big" at the McDonalds next to the convention center. Although Apple's consumer comeback didn't upstage the multimillion-dollar presence of gaming heavyweights such as Nintendo and Sony, our favorite fruit-flavored company was definitely in the house. Here's a look at what we found—the good, the bad, and the ugly.

Macs Everywhere

The most important difference at this year's E3 Expo is that actual Macintosh computers were showing up here and there—iMacs, mostly. For the first time, companies even used Macs to showcase their games. Even our parent company, Imagine Media, used iMacs at its booth—which showcases magazines such as *PC Gamer* (note the PC in the title).

Lots of Cool Announcements

Although companies made tons of Mac game announcements during E3—we've chronicled our top 10 favorites below—the coolest, most exciting thing that we saw we can't talk about, other than to say that it's from Bungie, and it's going to be very, very cool. Bungie

could (and did) show us more of *Oni*, which combines the ease of first-person shooters with wild hand-to-hand fighting moves normally reserved for games such as *Mortal Kombat*. The latest builds look great, and play great as well. All that and a bag o' anime-style rendered characters? Count us in.

Also on the very cool shortlist was *Total Annihilation* from MacSoft, a port of the popular 3D real-time strategy game for the PC. *Total Annihilation* was released on the PC back in September 1997. This game offers 3D terrain and units—tanks on hills tilt, vehicles



PLAY CAPTAIN SISCO in the upcoming game *Star Trek Deep Space Nine: The Fallen*.

firing heavy guns rock, and so on. With 50 missions and over 150 units, *Total Annihilation* covers land, sea, and air combat, and it's almost ready to arrive on the Mac—it should be out as you read this.

Also on the eagerly-awaited-and-now-coming front, Blizzard's *Brood War* will be arriving on the Mac. And on the simultaneous release front, Simon & Schuster showed us the in-progress version of *Star Trek Deep Space Nine: The Fallen*. Based on the Unreal engine, the game is slated for release in early 2000—at the same time as the PC version. Nice! Simon & Schuster also showed us *Deer Avenger 2: The Return of Bambo*, which will appeal to those who enjoyed the original version (or who like to make fart noises).

There were a few game announcements



BIG EXPLOSIONS, COOL VEHICLES, and 3D *Total Annihilation* are all almost here.

that didn't quite make it in time for E3, but were pretty cool nonetheless. Fans of TSR's *Advanced Dungeons & Dragons* games will be happy to hear that the wildly popular PC game *Baldur's Gate* is coming to the Mac, thanks to a deal between Interplay and Graphics Simulations (which may also result in *Descent 3* coming to a Mac near you).

A Final Irony

Back in our October '97 issue, then-editor Kathy Tafel lamented Apple's absence at E3 and drew a diagram of what the ideal Apple booth would look like. This year, Apple finally came to E3, putting up banners touting the iMac and even sponsoring a large booth just off the trade show floor. Kathy Tafel, who is now an Apple employee, had a hand in bringing an Apple presence to E3 this year.

BUNGIE'S ONI features some tough-looking opponents such as this brute.



IT'S JUST LIKE THE SCENE from that sad, sad Disney film—*Hercules*. *Deer Avenger 2* is on the way whether you want it or not.

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how to

StarCraft

This stuff is so fun you should pay us...oh yeah, you do.

Make StarCraft Worlds

by Scott Love



Blizzard Entertainment's StarCraft (<http://www.blizzard.com>) is one of the most enthralling games to come out on the Mac this year. Following the tradition of Warcraft, it requires you to build resources and command units to ultimately take control of any given map. Units range from infantry grunts to battle cruisers, and as a welcome addiction—uh, we mean addition—this time you get to play one of three very different forces. While the Orcs and Humans in Warcraft essentially differed only in graphics, here you must conquer the universe while playing a Human (or Terran), Zerg, or Protoss, each species possessing unique strengths and weaknesses.

In addition to the variety of characters and the great gameplay, a key to StarCraft's success is its powerful, flexible map and campaign editor, StarEdit (this comes with the game). The possibilities

of creating your own scenarios multiply the game's longevity tenfold. Tired of the battlefields included with the game or on the Internet? Just make your own.

In this how-to, we'll show you how to use this great supplemental tool to create your very own brain-twisting levels. StarCraft's editor is as easy to use as a paintbrush, but offers far more control over its maps than simply cranking out variations in terrain. With its simple scripting tool, you can make branching results and event-driven paths, then incorporate them into complex, narrative-driven campaigns. In this lesson, we'll teach you how to create a simple branching level, complete with a mission objective and some mild scripting. Our example is for a single-player game, but you can just as easily create network levels for multiplayer mayhem. Fire up your copy of StarEdit and follow along.



TOUGH
This stuff's for the pros.



TRICKY
It'll take some effort, but you can do it.



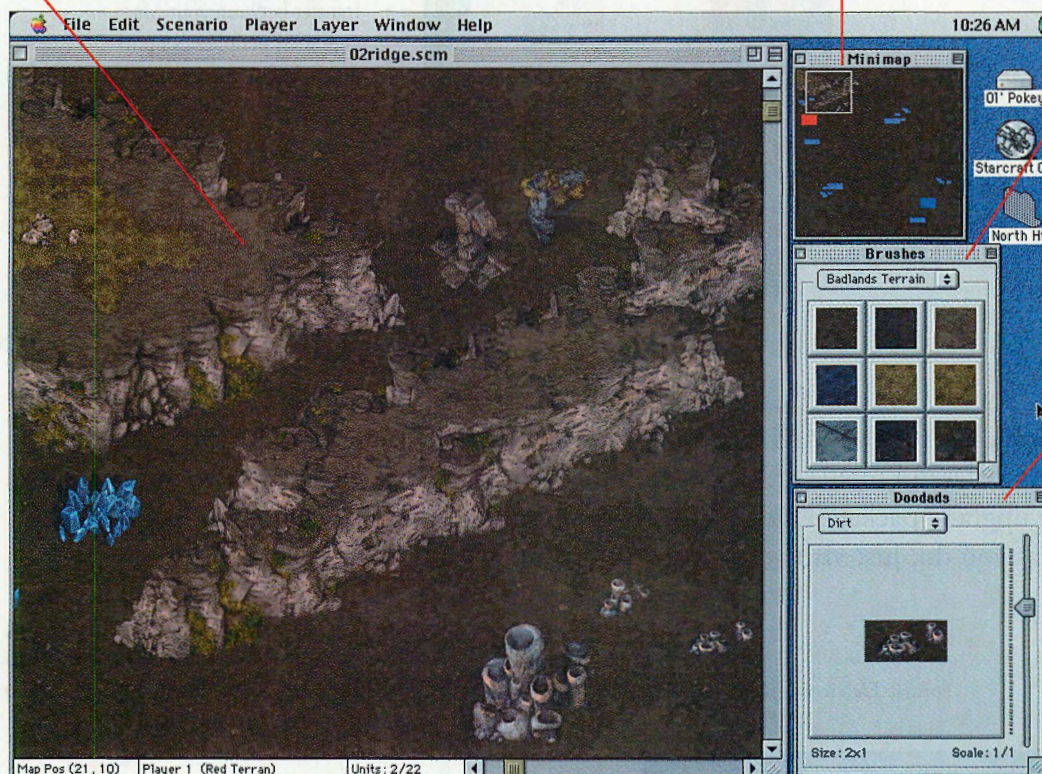
EASY
The fundamentals, if you will.

1 MAP AREA: Here's your canvas. When creating a new map you may select the size of the map and what terrain set you'll use in creating it. Here we've selected Badlands. A nice time-saver: You may also specify what default terrain your map starts with.

2 MINIMAP: Keep an eye on the big picture in this overview window. You may also click it to jump to a portion of your map. This is a big help, since the map window doesn't autoscroll.

3 BRUSHES PALETTE: This is where you'll select each element to paint on your map, from terrain to units to resources. Most of the time you'll use the terrain brush.

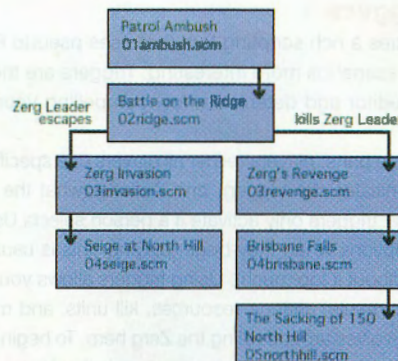
4 DOODADS PALETTE: It's possible to create a map sans Doodads, but true map-making junkies know that's a sure sign of a dilettante. It's best to leave the Doodad palette open all the time, and paint from it as you build your maps.



1 Getting Started

Creating a map is as simple as firing up StarEdit and painting on various terrain types selected from the brush palette. Save your result with all its settings and you'll be ready to roll—just put it in the Map folder within the StarCraft folder on your hard drive, and you'll see it when you launch a single-player game. If you aspire to create a compelling map or campaign, however, there's far more involved than simply banging out a variant on one of the stock battlefields.

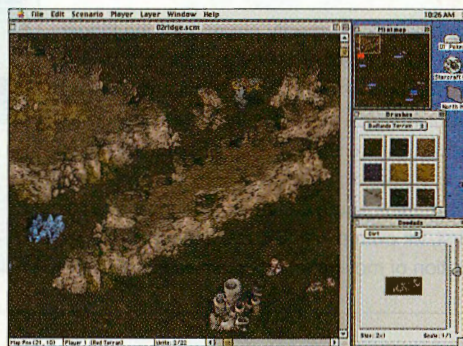
The first thing to do is to decide if you want to make this map part of a greater whole—a campaign—or a single game unto itself. You'll also need to decide whether to make it a single or multiplayer experience. For this how-to, you are designing the key branching map of a seven-map campaign for a single player. This map would determine which other maps you'd play if you constructed all seven for a varied narrative. We've laid out a simple storyboard showing how the maps would flow. The map we're making is the 02ridge.scm map.



THIS STORYBOARD AIN'T ROCKET SCIENCE, but it will help—as you're working on individual maps, you can refer to your overall plan. We've got one branch in the campaign planned—it depends on whether the player can nab a specific Zerg hero unit.

2 Fun with Paint

To get started, close the default map that opens when you launch the campaign editor and start a new one by selecting New from the File menu. You can make your map as big or small as you want, but for now set the scene in the Badlands with Dirt Terrain. As soon as the map opens, start painting on the terrain by choosing the kind of ground you want from the Brush palette (make sure Badlands Terrain shows in the pull-down menu). Units can pass through some terrains; other types require ramps and bridges in order for units reach them. Make sure you have an accessible map and test it by playing a game with one or two land units, making sure they can slog from one end of the map to the other. Focus on creating your terrain before laying in the majority of your forces—you'll need to tweak a fair amount, and undoing your hard work isn't fun.



ONE OF THE TRICKIEST PARTS of creating a map is making sure your units can access each area of the map. Remember that they need a full square (your brush size) of a terrain type to walk or build on it. What looks like a narrow passage on your map is, in fact, an impassable roadblock. Your infantry guys will stare stupidly at a narrow ridge if asked to traverse it.

3 Starting Points, Doodads, and Resources

It's good to decide on the starting locations for various units before you get too far in painting. This way you'll know exactly where your players will be and can estimate how they'll uncover and use the map. To set a starting location, simply choose Startup Location from the Brush palette's pull-down menu. (Set a different startup location for each player by choosing various players from the Player menu.) Try to plan where and how different units will come into contact with each other. You also need to lay down some resources (again from the Brush palette). For this map, give each player four or five Mineral Fields and at least one Vespian Geyser. Also scatter random doodads from the Doodads palette around the place to give the map a rich, lived-in feel.



DON'T FORGET YOUR DOODADS. They're largely cosmetic but make the map far more interesting to play on. Place doodads in strategic locations to control access to certain areas or give units a screen to hide behind.

4 Bring On the Troops

So you have landscaped a scenic arena, decided on two or more starting locations, properly populated it with plenty of doodads. Now you're ready for the troops. Adding units to the map can either be a no-brainer or take some work, depending on what you've got in mind. Your players may start with as many or as few units as you wish. In this scenario, you need a Zerg hero to kill, so we'll require at least a few units to defend the hapless bug. From the player menu, select Zerg. Then from the Brushes pull-down menu, select Ground Units. Lay in a few Zerglings and one or two Hydralisks for good measure. If you wish, drop a building or two down as well (just to give the computer a head start).

Next you'll need to add our intrepid Zerg hero. For now choose Kukulza, since he flies. Later you'll set player 1's objective to kill that hero. As for your protagonist's troops, select player 1 from the player pull-down menu, and lay down some humans. At the very least, set down one or two Terran SCVs near the player 1 starting point.

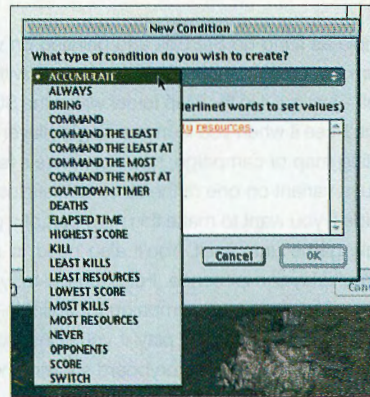


PLACING A HERO is easy from the palette of preset heroes...or you may want to create a hero of your own via the Scenario/Units and Heros Setting menus.

5 Itchy Triggers

StarEdit includes a rich scripting tool that uses pseudo English to make your scenarios more interesting. Triggers are the heart and soul of the map editor and determine how compelling your maps are for play.

Each trigger has three parts: players (either all players or a specific player), Conditions (what initiates the trigger), and Actions (what the trigger does). Keep in mind that triggers only activate if a person selects Use Map Settings in the game options when they begin playing (this is usually the default, so don't worry about it too much). Using triggers allows you to end scenarios, add reinforcements, change resources, kill units, and more. In this map, your trigger revolves around killing the Zerg hero. To begin setting the trigger, select Triggers from the Scenario menu and click New.

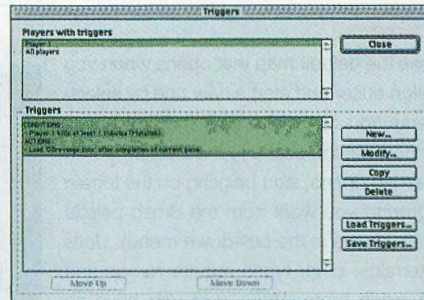


BUILDING TRIGGERS is a snap with these easy menu-based scripting steps.

6 Set the Trigger

Once you've started a new trigger, specify player 1 for the trigger action. In Conditions, set "player 1 kills at least 1 Kukulza (Mutalisk)" by using the simple pop-up menus provided. Finally, you'll need to set what happens when poor Kukulza dies—set the next scenario as 03revenge.scm. This trigger loads the next scenario to play in our little campaign, which depends on player 1's nailing Kukulza.

To add some spice to the mix, think about adding another player to the map. If player 3 kills Kukulza first, for example, that doesn't meet the trigger condition, and you have the option of moving to a different scenario next.



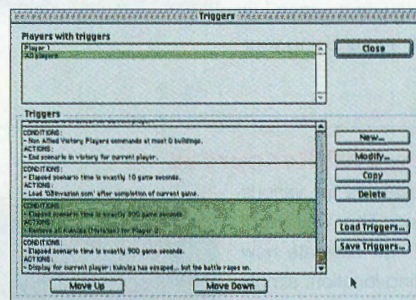
Once you've created a trigger, you can see in plain English how and when it will take effect. Also remember to control the order of your triggers in case you want one to override another.

7 Set an Alternate Option

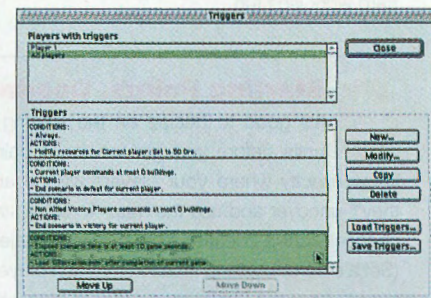
Now we need to create an alternative path.

We know what happens if player 1 kills Kukulza, but what if that doesn't occur? To form this option, create another trigger and set it to all players. Then select Elapsed Time as the condition and set it to 1 second (so the trigger starts right at the launch of the game). Set its action to the next scenario, named 03invasion.scm. This sets the default next scenario—so if player 1 doesn't manage to kill Kukulza, he'll face a full-scale Zerg invasion rather than a revenge strike.

We need one more trigger to set a time limit. Add a trigger to kill Kukulza after 15 minutes. If a trigger kills him, that means player 1 hasn't killed him, and the game moves on. You may also set a trigger to post a message to the screen—something to the effect that Kukulza successfully escaped, but that the battle rages on.



THESE LAST TWO TRIGGERS remove the Zerg hero and display a message for the player. With this simple set of branching triggers, you'll immerse the player in an extended battle he or she controls.

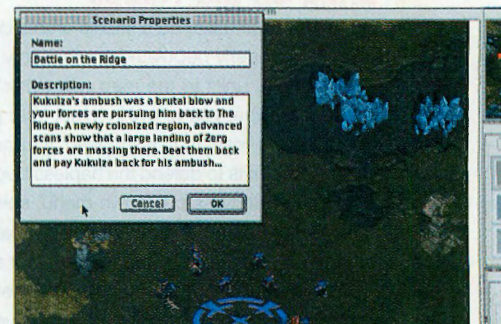


THIS TRIGGER ESSENTIALLY ESTABLISHES a default setting for the scenario. Unless your player manages to meet other objectives, the next scenario will be 03invasion.scm.

8 Finishing Touches

And that, friend, is how you make a StarCraft Map. Now you need to fill in the other maps to make a complete campaign. Before posting your opus to the Internet, open the Scenario Properties and make sure you give your scenario a proper name and introduction. It's ready to play—but believe it or not, you've just scratched the surface.

If you're an advanced cartographer, you can add your own sounds and even animation to a scenario to give it a rich back story. You could expand the simple branch we've outlined here into dizzying open-ended gameplay. Even one scenario has more options than just kill or be killed: With triggers, players can set spy objectives, recon missions, great escapes, sabotage...only your imagination limits the options. Go trigger happy. We dare ya.



SET THE STAGE WITH a bit of back story in Scenario Properties. You could also add triggers to display messages in the first minutes of the game. Good Starcraft maps rely on such details.



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how to

Skip Between Scenes in QuickTime 4

by Mark Simmons



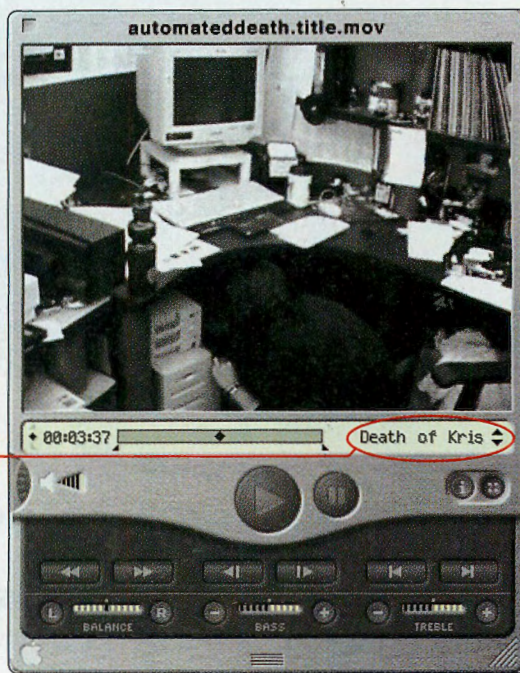
EASY

You've probably heard plenty about the magical new features of QuickTime 4.0—live streaming, powerful authoring capabilities, a new-fangled player interface, and so forth. While they were pumping our beloved multimedia application full of new headline features, Apple's QuickTime team also took the time to throw in a few less-touted gimmicks—the sole significance of which is their wacky coolness. Among our favorite such enhancements is QuickTime Player's support for nifty chapter titles.

The concept behind these chapters should be familiar to anyone who's used a CD or laser disc player. The idea is that you divide your movie (or audio file) into labeled segments, and gain the ability to jump backward and forward between these segments. When you divide your QuickTime movie into chapters, chapter titles replace the audio output display in QuickTime Player's time display area, with up and down arrows for navigating from one segment of your movie to the next. Here, we've revisited the second part of the epic staff video "Automated Death" and tagged each dramatic scenario for easy identification.

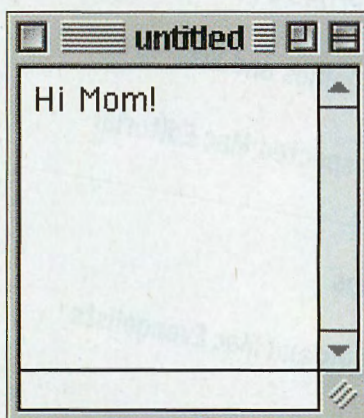
The magic ingredient that makes this gimmick possible is the chapter track, a specialized permutation of QuickTime's powerful yet mysterious text track. Running alongside the conventional audio and video tracks, the text track can display subtitles, captions, handy keywords, karaoke lyrics, and much more. The following exercise will introduce you to this little-noted media type.

NIKKI, ADAM,
KEN, JEN—the chapter
track control we've added
lets you skip back and
forth to each staff
member's grisly
demise!

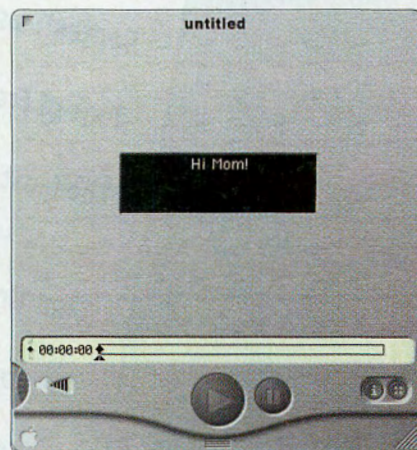


1 Create a Text Track

Before you can start monkeying around with a text track, you have to get one from somewhere. Though the QuickTime Player can't spawn new tracks on a whim, it can import a regular, unassuming text file—say, a SimpleText file with the message "Hi Mom!"—and convert it into a new text track. Use the Import command in the player's File menu, or simply drag your text file onto the player's Finder icon.



THE FIRST STEP in text track creation:
Find a simple text file.



LOOKS MUCH BETTER in a QuickTime Player
window, don't you think?

What You'll Need



QuickTime Player 4.0 Pro

You need the player component of Apple's QuickTime 4.0, currently in public beta testing, to display the chapter titles. To perform the editing and splicing tasks, you must pay Apple's \$29.99 registration fee and unlock QuickTime Pro's authoring capabilities. See <http://www.apple.com/quicktime> for the download, registration instructions, and tutorials.

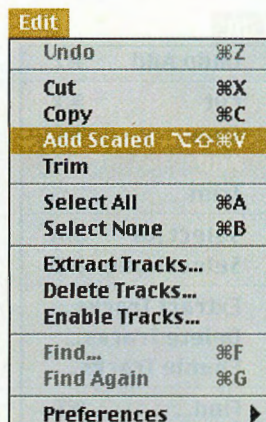


A Sample Movie

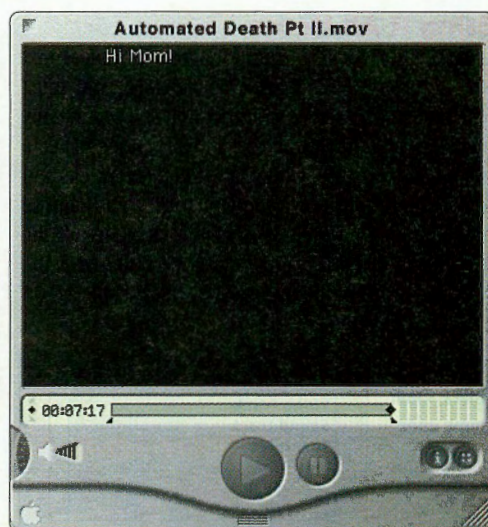
Naturally, you'll need a QuickTime movie worthy of titling—henceforth referred to as the target movie. We suggest a long movie with multiple scenes for your chaptering practice.

2 Match Your Movie

Now that you've created a crude text track, you can use one of QuickTime Player's secret features to extend it to match the running time of the soon-to-be-chaptered movie. Choose Select All from the Edit menu and copy your raw text track, then switch to the target movie and select all of *that*. (Make sure you've "rewound" the target movie to the beginning, or you'll add the text track at the wrong point.) Finally, hold down the Command and Option keys and select Add Scaled from the Edit menu. This lays the text track on top of the existing audio and video tracks and stretches its length to fit the target movie, rather than splicing it into the middle of the movie as the Paste command would do.



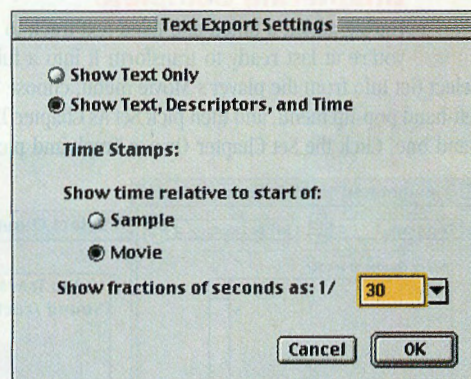
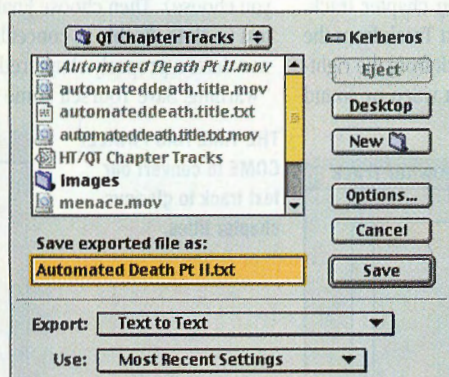
THIS HANDY COMMAND appears in place of Paste when you hold down the Command and Option keys.



WE'VE NOW EXTENDED OUR TEXT TRACK to match the movie's running length.

3 Export Your Dummy Titles

Having created a text track of the proper running length, you can now export it out to a text file for editing. Choose Export from the player's File menu, and select the Text To Text export option. Before you save the file, click the Options button and apply the settings shown on the far right. Be sure to select Show Text, Descriptors, And Time, or you'll export only the text and not the vital markup required for a properly formatted text track.

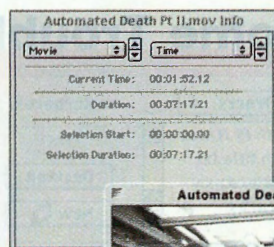


USE THESE EXPORT SETTINGS—the setting for fractions of seconds matches QuickTime Player's.

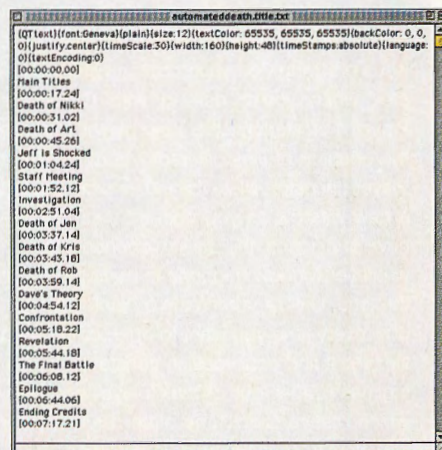
IT'S TIME to turn your title track back into editable text.

4 Edit Times and Titles

Open your exported text file and take a look. You'll see a bunch of parameters and settings in curly brackets, followed by beginning and ending time codes with your dummy text in between. You can add titles for key events and scenes by inserting the appropriate time codes with the corresponding title text on the following line. (Be sure not to delete the beginning and ending time codes in the process.) While QuickTime Player's time display is only accurate to the second, you can determine the precise fraction of a second by choosing Get Info from the player's Movie menu, selecting Time from the right-hand pop-up menu, and watching the Current Time field. Hint: Tap the space bar to stop and start the movie, and use the left and right arrow keys to advance the movie frame by frame.



HERE'S OUR COMPLETED TEXT TRACK, with times and titles for each scene of the movie.

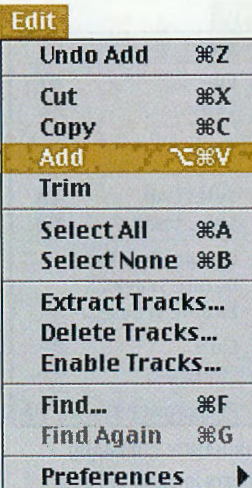
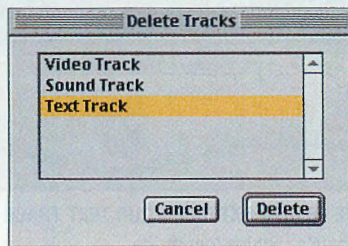


THE PLAYER'S GET INFO WINDOW helps you time scene changes down to a fraction of a second.

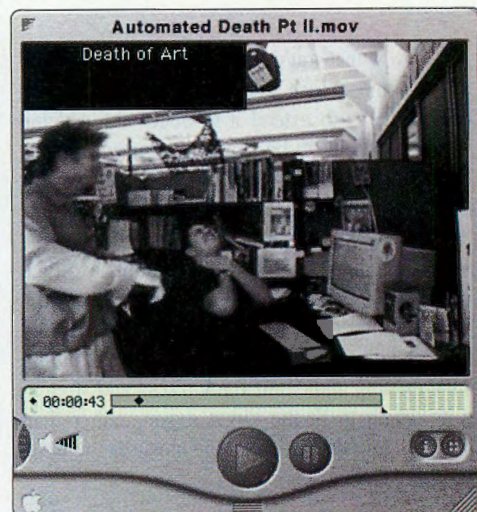
5 Bring It All Home

At last, you're ready to import your complete text track into QuickTime Player. As before, you must import the text file into a player window, then select and copy the entire file. Switch to your target movie, choose Delete Tracks from the Edit menu to erase any scaled text tracks you created earlier, then hold down the Option key and choose Add from the Edit menu. (Since your text track is already the right length, this time you don't need to scale it to match the target movie's length.) You'll now see your titles displayed on top of the original movie.

BEFORE YOU APPLY
your final titles, clear out the dummy ones you added earlier.



THE UNSCALED ADD
COMMAND works just fine for our precisely timed text track.

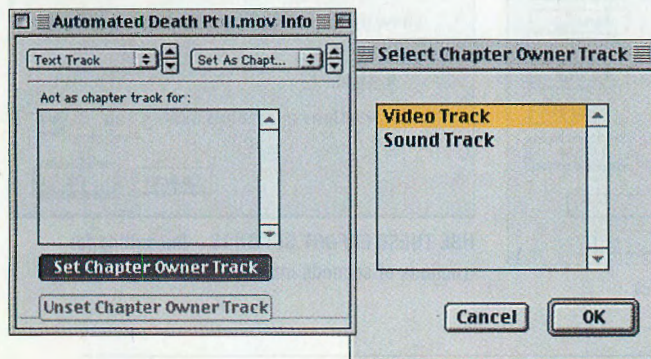


BY DEFAULT, THE TEXT TRACK DISPLAYS in a black area superimposed on the movie—but we'll fix that.

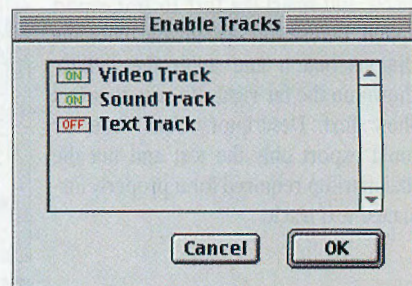
6 Chaptering Complete

Having added a timed and titled text track to your master movie, you're at last ready to transform it into a full-on chapter track. Select Get Info from the player's Movie menu, choose Text Track from the left-hand pop-up menu, and then pick Set As Chapter Track from the right-hand one. Click the Set Chapter Owner Track and pick a video or sound

track to which you'll attach the titles (it doesn't much matter which track you choose). Then choose Enable Tracks from the Edit menu and click the text track to disable it, concealing the text in the actual movie frames. You now have a properly chaptered movie, suitable for saving (see the sidebar, "Warning: Save Yourself Some Trouble") and ongoing enjoyment!



THE TIME HAS FINALLY
COME to convert our text track to glorious chapter titles.

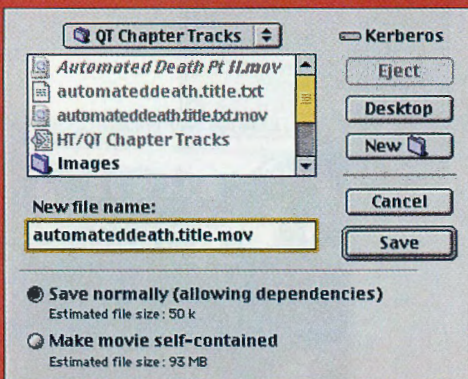


NOW WE CAN TURN OFF the text display within the movie itself.

Warning: Save Yourself Some Trouble

In the course of this how-to, we've had you frivolously importing, exporting, and juggling movies...but we haven't discussed the issue of saving files, which can get pretty complex when you're dealing with QuickTime Player. For starters, the new player handles the opening of files differently from its Movie Player ancestor; while the old version created a new window as you opened each file, the new one loads the newly opened file into whatever window happens to be frontmost at the time. Unless you create a blank new window every time you want to open or import a file, you'll find your movies constantly bumping each other out of their player windows, which means QuickTime often asks whether you want to save the work in progress.

In most cases, the answer is no. That's because if you give it the opportunity, QuickTime Player will merely link to an external file rather



Our 50K movie serves as a lightweight chaptered interface for the 93MB original.

or making the movie self contained. If the original movie is really huge, like the 90MB one we're working with, you can save the titled version as a dependent movie linked to the uncaptioned original.

than copy data into your working movie. Thus, if you save your text track as a separate movie and then add its contents to another movie, the player merely points to the saved text track—and the resulting titled movie depends on this external file. Rather than saving your text tracks as separate movie files, you should import them into QuickTime Player and copy them to your target movie before saving anything. Once you've added them to the target movie, you can then save that with a clear conscience.

When you at last save your titled movie, the Save dialog box gives you the option of either allowing dependencies

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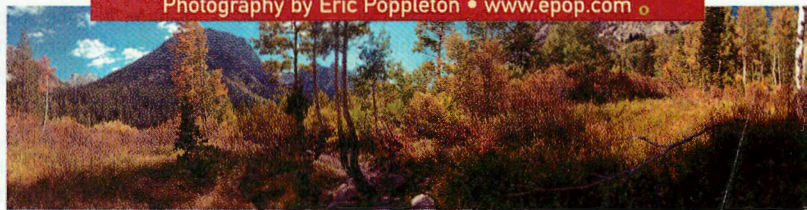
VR PanoWorx™



PANORAMIC

Panoramic movies show the viewer a full 360 degrees vista. The movie is built out of a series of still photographic images, stitched together to form a single flat panoramic image which is wrapped into a barrel and seamed together. The viewer is placed inside, seeing the interior of the barrel as a panoramic vista. The viewer can look left, right, up and down, turning around to see all views of the 360 degree panoramic scene.

Photography by Eric Poppleton • www.epop.com



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VR ObjectWorx™



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Object movies feature multidimensional views of a particular object. The movie is constructed out of a series of still images (usually 36 for a single band, up to 684 for a full pole-to-pole multiband object movie) which it compiles to create the illusion of a three-dimensional subject. The viewer is given the impression that they are "holding" the object in their hand. They can then rotate it and even tumble it to view all of its sides from any direction.

Photography by Arcamedia • www.arcamedia.com



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VR SceneWorx™



SCENE

Multi-node movies are interactive virtual environments, referred to as "scenes," built by combining panoramas, objects, still images and linear movies. Nodes are joined together via linking tools which create hot spots used for navigating from node to node. The resulting movie allows the viewer to "walk" from room to room (each with 360 degree view), pick up and examine objects, watch linear movies and read text or view still images.

Photography by Kelly Bringham • www.pbproductions.com



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FIND THE SHAREWARE and freeware programs mentioned on The Disc.

The cover of this magazine says August, but I'm writing this column in early May—and in the spirit of spring cleaning I'm revisiting past columns to amend answers, correct omissions, and fix errors.

Fabulous Fonts

Way back in December 1997, a reader asked how to make font menus show available choices in the right typeface. I recommended Now WYSIWYG Menus in Power On Software's Now Utilities (800-344-9160, 330-735-3116, <http://www.actionutilities.com>), as well as Henry Starr's Font-o-rama shareware application (<http://www.teleport.com/~astarr>). Now Utilities hasn't been upgraded for Mac OS 8, and Font-o-rama isn't the most elegant solution, but I've since learned of a great commercial program: Dubl-Click Software's MenuFonts (541-317-0429, <http://www.dublclick.com>). This completely customizable \$39.95 control panel works with System 7 through Mac OS 8.6. MenuFonts displays fonts in their own typeface and groups font families, plus it can display a font's ID number, file name, printer file name, and kind.

Favorite Folder

In the June issue of *MacAddict*, a user asked for a way to set the default folder when saving a document in an application. I recom-

mended Action Files from Power On Software, a very useful commercial control panel that can handle this task and much more. Jon Gotow of St. Clair Software (<http://www.stclairsoft.com>) pointed out that his shareware program, Default Folder, is a less expensive and worthy alternative. He's right, of course, and if you don't want to spend extra money for Action Files' bells and whistles, Default Folder may be what you're looking for.

Motorola Mea Culpa

The following pertains to an item that first appeared in the May 1999 column. A reader asked if Motorola's LibMotoSh extension still increases performance with Mac OS 8.5.1, and my tests indicated it does. But I failed to mention that the speed boost comes at the expense of accuracy in floating point calculations. While I have never experienced problems using LibMotoSh on a daily basis with a variety of applications, other users—primarily gamers—have run into situations where the extension is more trouble than it's worth.

IDE Ideas

Also in the May column, a reader asked for a way to use an extra IDE drive as an external device. As far as I can determine, nobody sells a PCI card that adds an external IDE bus to the Mac, but one vendor who requested anonymity claims to be working on such a product. I'll fill you in with the details as soon as the vendor's ready to make a formal announcement. In the meantime, you have several other workable options. As mentioned in July's column, the IDE-SCSI Card from BlackFire Technology (<http://www.blackfire.com.au>) essentially turns a 5 $\frac{1}{4}$ -inch IDE drive into a bare-bones SCSI device you place in a case with appropriate cabling and a power supply. A more complete solution is the Bondi blue External Case for IDE Storage to USB Interface, available from Bottom Line for \$79.99 (800-347-0052 or 512-485-4600, <http://www.blol.com>). Install a 5 $\frac{1}{4}$ - or 3 $\frac{1}{2}$ -inch IDE hard disk in this case, and you've got a drive you can connect to a USB port. In the same vein, Microtech International (800-

340-0197 or 949-855-7500, <http://www.microtechpc.com>) has announced the PortableDrive cases, which turn an internal IDE hard disk into a drive you can connect to either a USB or a PC Card port. Microtech hadn't released the PortableDrives at the time of this writing, but expects to price both its 2 $\frac{1}{2}$ - and 3 $\frac{1}{2}$ -inch versions at less than \$100.

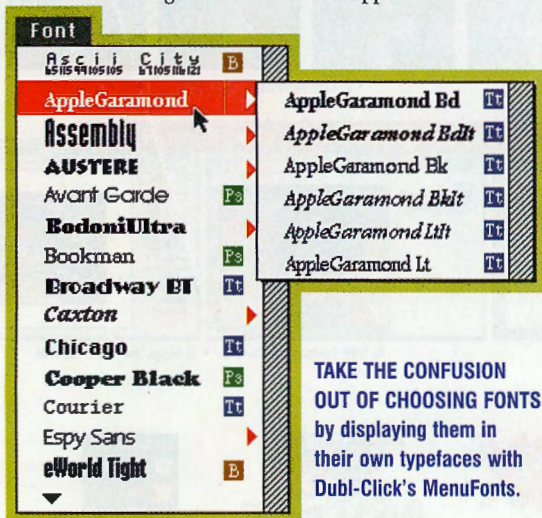
Epson Errata

In the June issue, when a reader asked for a way to share his Epson Stylus Photo EX printer on a network, I recommended PortShare Pro from Stalker Software (800-262-4722 or 415-383-7164, <http://www.stalker.com>), which lets you share almost any serial device, with prices starting at \$79 for five clients. Ivan the Australian wrote to tell me that NiceBoy Software (<http://www.ses.fr>) has a shareware program (\$39 for three clients), EpsonShare 1.2, that allows you to share an Epson Stylus Photo 700, 750, or EX over a network. It also works with the Epson Stylus Color 440, 600, 640, 740, 800, 850, 900, 1200, 1520, and 3000 printers, provided you use the latest Epson driver 5.5 and Mac OS 8.0 or later. Another reader emailed to inform me that Epson itself (800-463-7766, <http://www.epson.com>) recently released the \$159 Axis 1440 print server for the Stylus Color 740 and 850 or the Stylus Photo 700 and EX. This device plugs into the printer's parallel port and connects to your 10BaseT Ethernet network, allowing simultaneous use by Mac, Windows, Unix, and OS/2 clients.

Q Since the CD-ROM is the most common format for software distribution these days, what is the correct procedure for turning off extensions? If one holds down the Shift key at startup, doesn't this cut off the CD-ROM drive? Also, which extensions and control panels do you need at startup?

A Most software publishers recommend quitting all other programs when you run their installers, and some even suggest turning

[continued on page 86]



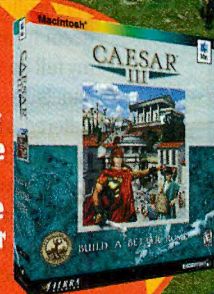
TAKE THE CONFUSION OUT OF CHOOSING FONTS by displaying them in their own typefaces with Dubl-Click's MenuFonts.

HAIL CAESAR, YOUR PEOPLE HAVE SPOKEN!

CENTURION

March, march, march... Got to keep on the lookout for the Barbarians. Oh yeah, and rumor has it the Carthaginians may be on the move again. Wait! Is that a camel over there?

Award-Winning PC Game Now Available For Your Mac!



ACTOR

Can't flub my lines again or the director said he'd turn me over to the lion tamers! Okay... "Et tu Bruno? No, that's not right. "Et tu Brun hilda?" Arghh!!

GLADIATOR

I've got to get to the Temple of Mars to make a sacrifice before tonight's contest in the Colosseum. I think I'm losing my touch. Last night the lions nearly took my head off! If only I hadn't missed that last lesson at the Gladiator School...



★★★★★ 1/2

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[continued from page 84]

off all extensions and control panels (especially antivirus and screen saver utilities), lest they interfere with proper installation of the new software. That's fine, prudent advice, like recommending that you always use a crosswalk to get to the other side of the street. Personally, just as I sometimes jaywalk when I deem it safe, I often install new software with my full complement of extensions and control panels in the System Folder, and I've never suffered any repercussions I can attribute to this "reckless" behavior.

However, if you want to follow the letter of the law, here's what to do. Insert the installation CD. Choose Restart from the Finder's Special menu, then hold down the C key to tell the Mac to use the CD, not your hard drive, as the startup volume (on some Mac models you must hold down Command-Shift-Option-Delete instead). If the CD has a valid System Folder, you're in luck, because we can assume the publisher included everything you need on the disc and nothing that would cause problems. When the Finder appears, just run the installer on the CD, and you're done.

If the CD lacks a valid System Folder, your Mac starts using the hard drive as it normally would. Under these circumstances, open Extensions Manager, Conflict Catcher, or whatever you use to deal with extensions and control panels. Turn off everything except those files necessary to use the CD-ROM drive: Apple CD-ROM (or Apple CD/DVD Driver), Apple Photo Access, Audio CD Access, Foreign File Access, High Sierra File Access, and ISO 9660 File Access. Anyone running newer versions of the Mac OS should also enable UDF Volume Access and Text Encoding Converter if you have these in your System Folder. Lock this startup set so new additions to the System Folder don't get put there, give it an appropriate name such as CD-ROM Install Set, and restart. This startup should include the bare necessities in your System Folder, allowing access to the CD installer without opening any extraneous files that could prove problematic. When you're done installing, switch back to your normal set of extensions and restart.

Every now and then when I'm surfing with Netscape Communicator 4.5, I get an error message that says I've started to download a file of type "application/octet-stream," and then I have the option of extending Navigator's capabilities. However, when I click More Info, I arrive at a site that doesn't say anything about octet-stream applications. What am I doing wrong, and how can I correctly download these types of files?

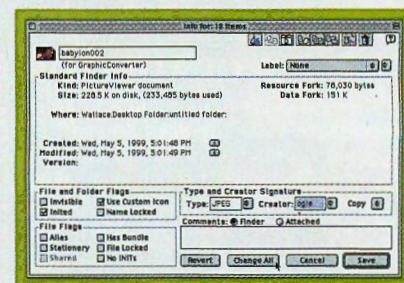
A You're not doing anything wrong. According to a tech rep at Aladdin Systems (800-480-4011 or 831-761-6200, <http://www.aladdinsys.com>), this alert box appears when the Internet server does not have the MIME (Multipurpose Internet Mail Extension) type set correctly for the file you want. Instead of clicking More Info, click Save File and allow the browser to save the file just as it is to disk. When the download finishes, drag and drop the file on Stuffit Expander, and it should decompress. You might also take a moment to send an email to the Webmaster at the site and complain about the incorrect MIME type. Keep in mind that if the file you are downloading turns out to have an .exe file extension, it's in a Windows program—you won't be able to run it on your Mac without an emulator such as Virtual PC from Connectix (800-950-5880, <http://www.connectix.com>).

Q I recently downloaded QuickTime 4.0 and realized that it is the best option for viewing my enormous Babylon 5 image collection. It loads quickly and displays the images according to screen size. Before I got PictureViewer with QuickTime, I used GraphicConverter to view files, but I didn't find it as convenient as PictureViewer, so I trashed the program. Unfortunately, all my JPEG files have GraphicConverter as their creator, so I want to change them to PictureViewer format. I know how to do this using ResEdit, but it will take too long to do them one by one (as I said, I have a *huge* collection). Is there a way I can change the creator codes all at once?

A GraphicConverter from Lemke Software (<http://www.lemkesoft.de>) is a great shareware program for batch converting about 100 different graphic file formats. It also has various special effects and manipulation tools that according to some users rival those of Equilibrium's DeBabelizer (800-524-8651 or 415-332-4343, <http://www.equilibrium.com>), and it even includes slide show and browsing capabilities. But now all of your files have GraphicConverter's creator code and you pre-

fer PictureViewer from QuickTime 4.0 (downloadable from Apple's Web site). No problem—in fact, you could use GraphicConverter to make the switch if you still had a copy of that program. Here's how to do this: Choose Preferences from the Edit menu. Click Save, then click the Settings tab. In the File Type text box, enter *ogle*, the creator code for PictureViewer. Click the Use radio button next to the new creator code, then click OK. This tells GraphicConverter to save files using PictureViewer's creator code from now on. Choose Convert More from the File menu, select your folder of Babylon 5 images, then click Convert and follow the instructions.

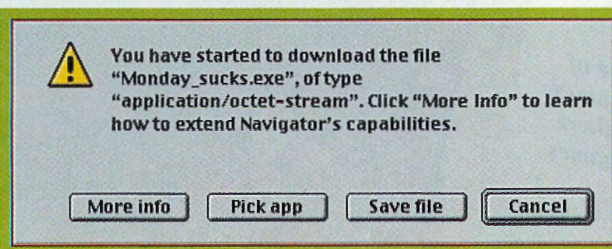
While you could use GraphicConverter as I just explained, I'd like to show you how to do the same thing with another program you can use to change creator codes for all kinds of files, not just images. Launch File Buddy, a \$39.95 utility from SkyTag Software (<http://www.skytag.com>). Choose Get Info from the File menu. Navigate to the folder that holds your Babylon 5 image files, then press Command-A to select them all (this only works if you are using Mac OS 8's new Navigation Services; otherwise you must create a File Buddy list containing all the files and apply the Get Info change to it). Click Choose. In the window that appears, change the file's creator code from *GKON* (GraphicConverter) to *ogle* (PictureViewer), then click Change All. In a flash you've changed all your files and can



CHANGING CREATOR CODES is a piece of cake for File Buddy.

now open them with PictureViewer by double-clicking in the Finder. Changing file type and creator codes is just one of File Buddy's many powerful features, and I encourage you to explore its other capabilities, such as renaming a batch of files sequentially and locating duplicate files on your drives.

Owen W. Linzmayer is the author of the best-selling new book *Apple Confidential: The Real Story of Apple Computer, Inc.* (<http://pw1.netcom.com/~owenink/confidential.html>). Submit technical questions or helpful tips directly via askus@macaddict.com.



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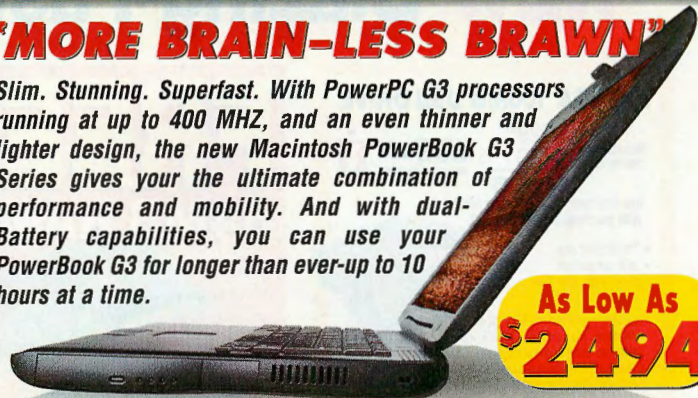
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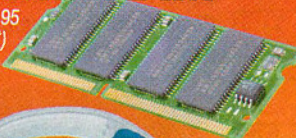
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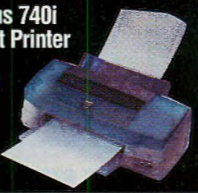
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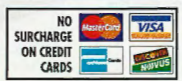
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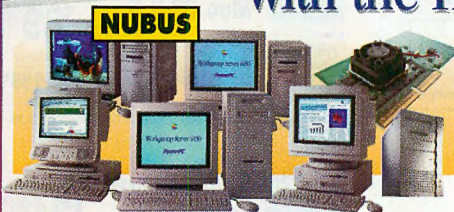
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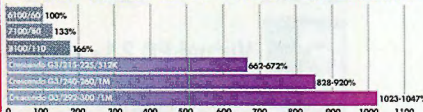
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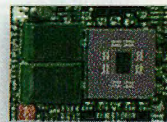
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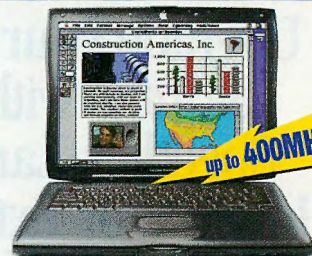
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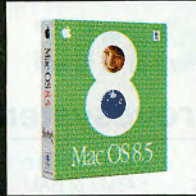
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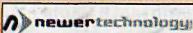
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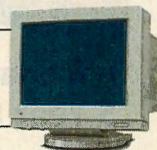
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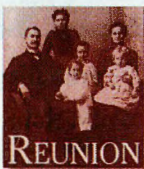
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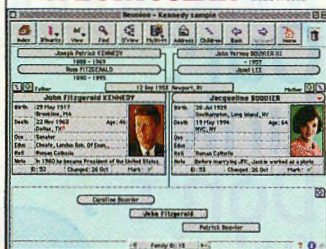
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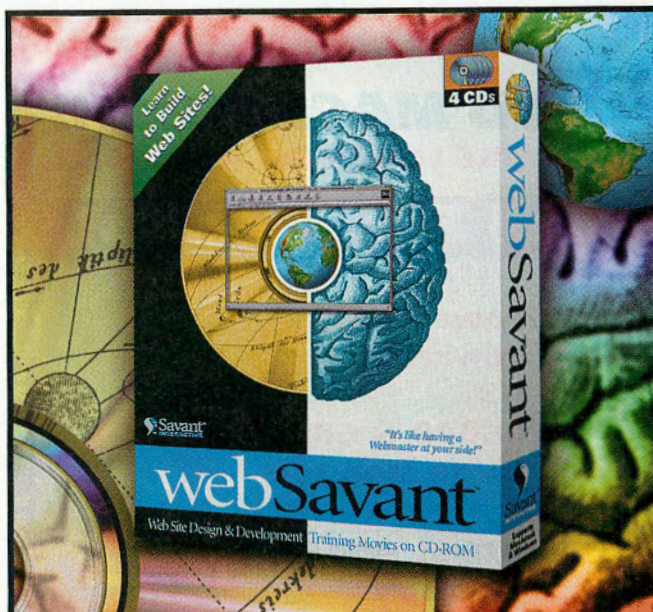
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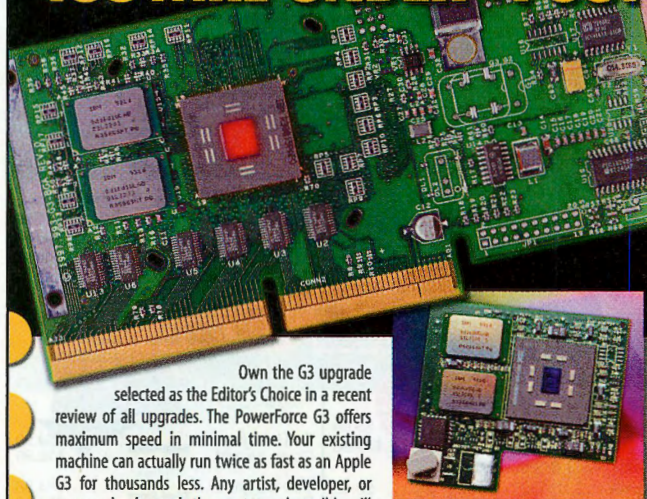
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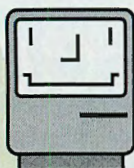
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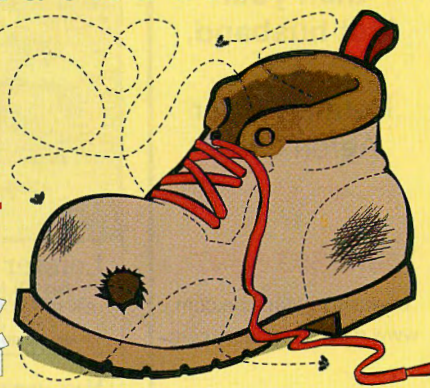
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Microsoft Employs Organic Computing Devices

Testimony in the Microsoft antitrust trial revealed a startling fact: Microsoft has apparently perfected organic computing devices to the point where they account for billions of dollars in sales.

During the trial, Microsoft witness Richard Schmalensee, an MIT dean, testified that the software giant uses sheets of an organic material made primarily from wood pulp and other plant fiber (also known as paper) to record operating system sales by hand.

"Frankly, we're a little frightened by this," said one source at a competing software company who asked to remain unidentified. "I mean, we're still using Excel on a bunch of crappy PCs to do a lot of our day-to-day accounting. We had no idea that Microsoft was this far ahead of the curve, but they haven't stopped to address the obvious ethical questions. They've abandoned their own software in favor of this...abomination."

There have been no reports on whether Microsoft uses wood-and-graphite devices to mark the paper or relies on less fault-tolerant plastic-and-ink devices.

Micron Laptops Employed in New Field Role for Military

After reports surfaced in May of Micron Gobook laptops burning computer users due to excessive heat, Air Force officials are considering using the laptops as field heating units in several roles.

"These things are great," Airman Bethany Krady said, hugging her Gobook to her chest. "It's better than a load of warm socks straight out of the dryer."

"Yeah, they're real easy to use," agreed Corporal Lance Shenanigan, an Air Force cook. "We just short a battery in one of them Gobooks and they work great as hot plates. A single Gobook will keep a pot of hot dogs warm for three or four hours."

Company Reveals Email Address Cleaning Secrets

The NBG CD company (specializing in selling email address CDs) has revealed a special technique for gathering addresses—and offended an anti-spam group in the process. While the company uses straightforward filtering techniques to remove profanity and duplicate addresses, one special technique really stands out. In the company's own words, "We used a list, updated daily, of terrorists opposed to bulk email and general anti-Internet advertising extremists to rid our lists of those people who in a cowardly and deliberate manner attack all marketing people who choose to utilize the greatest marketing discovery of all time—direct email."

Members of the anti-spam group Concerned Citizens Against the Wasting of Digital Resources (or CCAWDR) started an email letter-writing campaign to get the email address company to retract the word *extremist*. The group only sent 17 actual messages to recipients outside the organization due to self-imposed restrictions.

"Sure, we're disappointed by the results, but what can you do?" said one letter writer. "We're bound by our oath never to send out an email unless we have prior permission to do so, and you can imagine the kind of bind that puts us in, what with all of the phone calls to get permission. It gets pretty boring after a while, so most of us just went out for pizza."

The group is planning a protest against its own name next, noting that the acronym really sucks.

Serial Site Killer Strikes

Amid a splash of spam, the iNax arrived on the Internet scene in five fruity flavors. The iNax, a revolutionary toilet borrowing heavily from the industrial design that the iMac first pioneered, appeared on a Web site in late spring with the slogan "Sit different." It just as quickly disappeared for reasons not fully understood (at least by the guy who served us chips at Chevy's).



In its place was the image of a man kneeling and bowing low with his hair trimmed to form the silhouette of an apple. (The bite mark was missing from the right side, presumably to avoid infringing on Apple's lucrative corporate-logo hair-styling business.) The following text appeared below the image:

Thank you very much for your visit.
But the exhibition of "iNax" is over.
I'm glad of the generous treatments of INAX and Apple.
But it is true that I give them troubles. So...
I apologize in a Japanese typical style,
doeza-suru (kneel down on the ground)
and
atam-wo-marumeru (cutting one's all hair)
...but I love Apple, so I form it into an apple.
The request by mail is also stopped.
Thank you!

Authorities have begun looking into a similar site disappearance reported in early June, when an Apple television commercial archive site was wandering on the wrong side of town after dark looking for a pub not yet overrun by yuppies. Two clues turned up at this site. One was this message:



The second, less promising clue was a single size-seven red Converse tennis shoe with the name "Jimmy" scrawled on the heel with a black Sharpie.



Sometimes Newer Is Better Than New.



Now the fastest Apple G3 is available in breakthrough beige.

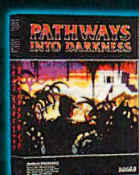
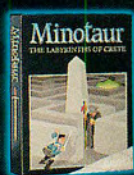
You don't need transparent blue plastic to have a faster Mac. Just plug in a MAXpowr™ G3 upgrade card from Newer Technology. Topping out at a blistering 466MHz, these patent-pending cards give you quicker start-up times, smoother game play and all the speedy processing power of the latest G3 machines. Fourteen years ago, Newer made the first Mac upgrade and we still offer more upgrade options than anyone. We even engineer cards for systems once considered "non-upgradeable". And now you can get the most dependable cards on the market at our lowest prices ever. Check our web site for a complete list of supported systems. Then order one for your beige or blue beauty today, and enjoy a price as impressive as the performance.



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